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BRAITHWAITE'S RETROSPECT.

VOL. XCIII. JANUARY-JUNE, 1886.

THE
RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND
PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

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CONTENTS OF VOL. XCIII.

SYNOPSIS PAGES 1—120.

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ARTICLE.	AUTHOR.	PAGE.
1 On the Use of Acupuncture in Certain Forms of Chronic Rheumatism... ..	<i>Dr. G. Lorimer</i>	121
2 On the Clinical Features of Rheumatoid Arthritis	<i>Dr. J. K. Spender</i>	122
3 On the Early Treatment of Rheumatoid Arthritis	<i>Ditto</i>	125
4 On the Causes of Death in Scarlet Fever ...	<i>Dr. Henry Ashby</i>	128
5 On the Treatment of Ague and Enlarged Spleen with Decoction of Lemon and other Kinds of Citrus...	<i>Dr. E. Bonavia</i>	131

DISEASES OF THE NERVOUS SYSTEM.

6 On Subacute Anterior Spinal Paralysis in the Adult	<i>Dr. Dyce Duckworth</i>	132
7 On the Diagnostic Value of "Tendon-Reflexes" in Tabes Dorsalis	<i>Dr. W. R. Gowers</i>	134
8 On the Deep Reflexes in Hysterical Paraplegia ...	<i>Ditto</i>	136
9 On Reflex Actions, Knee-Jerks, and Muscular Irritability in Typhoid Fever, Phthisis, and other Continuous Fevers	<i>Dr. Angel Money</i>	138
10 On a Typical Case of Peripheral Neuritis ...	<i>Dr. Thomas Buzzard</i>	142
11 On Progressive Peripheral Neuritis	<i>Ditto</i>	145
12 On Alcoholic Peripheral Neuritis — Alcoholic Paralysis	<i>Ditto</i>	149
13 On Peripheral Neuritis; the Cause of Diphtheritic Paralysis	<i>Ditto</i>	154
14 On the Differential Diagnosis of Progressive Peripheral Neuritis	<i>Ditto</i>	157
15 On the Treatment of Peripheral Neuritis ...	<i>Ditto</i>	159
16 On Lead Poisoning	<i>Dr. Thomas Oliver</i>	162
17 On the Relation of Lead Poisoning to Renal Disease	<i>Ditto</i>	167
18 On Cocaine Poisoning	<i>Editor of Lancet</i>	170
19 On Diagnostic Delirium	<i>Dr. B. W. Richardson</i>	171
20 On the Treatment of Chorea, with Special Reference to the Use of Arsenic... ..	<i>Dr. W. B. Cheadle</i>	173
21 On the Treatment of Chorea	<i>Dr. Richard Caton</i>	176
22 On the Treatment of Acute Traumatic Tetanus by Curare	<i>J. S. M'Ardule, Esq.</i>	177
23 On Megrim of Gouty Origin, and its Treatment by Diet	<i>Dr. A. Haig</i>	180

DISEASES OF THE ORGANS OF CIRCULATION.

ARTICLE.		AUTHOR.	PAGE.
24	On Acute Parenchymatous Myocarditis ...	<i>Dr. Samuel West</i>	182
25	On Occurrence of Dropsy in Mitral Stenosis ...	<i>Dr. W. H. Broadbent</i>	186
26	On Venesection in Mitral Stenosis ...	<i>Ditto</i>	188
27	On Regurgitant and Non-Regurgitant Mitral Murmurs ...	<i>Dr. Austin Flint</i>	190
28	On the Mitral Presystolic Murmur ...	<i>Ditto</i>	192
29	On the Mitral Diastolic Murmur... ..	<i>Ditto</i>	196
30	On Air Embolism	<i>Dr. N. Senn</i>	197
31	On the Treatment of Heart Disease in Children ..	<i>Dr. W. B. Cheadle</i>	198
32	On Strophanthus, a Member of the Digitalis Group, in Heart Disease (<i>with woodcuts</i>) ...	<i>Dr. Thomas R. Fraser</i>	200

DISEASES OF THE ORGANS OF RESPIRATION.

33	On the Theory of Bronchial Asthma	<i>Sir Andrew Clark</i>	203
34	On the Neurotic Treatment of Catarrh	<i>Dr. David B. Lees</i>	206
35	On the Treatment of Pneumonia	<i>Dr. Stewart Lockie</i>	208
36	On Intræ-Pulmonary Injections... ..	<i>Dr. Shingleton Smith</i>	209
37	On a Case of Raynaud's Disease Following Diphtheria (<i>with woodcut</i>)	<i>G. E. Hyde, Esq., and Dr. Allman Powell</i>	213
38	On the After-Treatment of Tracheotomy	<i>Dr. S. H. Habershon</i>	215

DISEASES OF THE URINARY ORGANS.

39	On Cyclic Albuminuria (Albuminuria in the Apparently Healthy).	<i>Dr. F. W. Pavy</i>	217
----	---	-----------------------	-----

SURGERY.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC.

40	On Re-Infusion of Blood in Primary and other Amputations... ..	<i>Dr. John Duncan</i>	221
41	On Caries of the Cervical Spine, and its Treatment by a Cervical Collar (<i>with woodcut</i>)	<i>Edmund Owen, Esq.</i>	225
42	On a New Apparatus for Supporting the Head in Disease of the Cervical Spine (<i>with woodcut</i>)	<i>Henry E. Clark, Esq.</i>	227
43	On the Treatment of Cervical Angular Curvature by a Combined Poroplastic Jacket and Collar (<i>with woodcut</i>)	<i>W. J. Walsham, Esq.</i>	230
44	On a Case of Separation of the Epiphysis of the Metacarpal Bone of the Thumb	<i>R. Clement Lucas, Esq.</i>	233
45	On Suppuration in Hip-Disease	<i>George A. Wright, Esq.</i>	234
46	Notes on Hip-Joint Abscess	<i>Edmund Owen, Esq.</i>	235
47	On the Indications for Excision of the Hip, and its Results	<i>Dr. L. Milton Yale</i>	237

ARTICLE.	AUTHOR.	PAGE.
48 On Congenital Dislocation of the Hip	<i>William Adams, Esq.</i>	240
49 On Excision of the Knee-Joint	<i>A. F. McGill, Esq.</i>	241
50 On Astragaloid Osteotomy for Flat Foot ...	<i>Prof. William Stokes</i>	245
51 On Osteotomy with Chain-Saw for Talipes Equino- Varus or Valgus (<i>with woodcuts</i>)	<i>Horatio P. Symonds, Esq.</i>	248
52 On a Simple Method of Treating Spurious Valgus in the Female (<i>with woodcut</i>)	<i>F. King Green, Esq.</i>	249
53 On Ohscure Sprains of the Elbow occurring in Young Children	<i>J. Hutchinson, Jun., Esq.</i>	251
54 On Chronic Sprain	<i>C. W. M. Moullin, Esq.</i>	253
55 On the Promotion of Union by First Intention ..	<i>William Berry, Esq.</i>	255

ORGANS OF CIRCULATION.

56 On the Treatment of Popliteal Aneurism by the "Old" Operation (<i>with woodcut</i>)	<i>Prof. T. Annandale</i>	257
57 On Compression of the Innominate Artery (<i>with woodcut</i>)	<i>Ditto</i>	260
58 On Ligature of the Subclavian Artery for Axillary Aneurism	<i>Bennett May, Esq.</i>	265

ORGANS OF RESPIRATION.

59 On Adenoid Vegetations of the Naso-Pharynx (<i>with woodcuts</i>)	<i>Henry T. Butlin, Esq</i>	269
60 On the Treatment of Adenoid Disease of the Naso- Pharynx by Operation (<i>with woodcuts</i>) ...	<i>Ditto</i>	272
61 On Excision of Portions of Ribs in Cases of Empyema—Estlander's Operation (<i>with woodcut</i>)	<i>R. J. Godlee, Esq.</i>	275

ALIMENTARY CANAL.

62 On the Application of Trusses in Hernia ...	<i>Professor Chiene</i>	280
63 On Distended Gall-Bladder and its Treatment ...	<i>C. G. Wheelhouse, Esq.</i>	281
64 On Gastrostomy for Œsophageal Cancer ...	<i>T. F. Chavasse, Esq.</i>	284
65 On Fæcal Accumulation	<i>Frederick Treves, Esq.</i>	287
66 On Stretching the Sphincter Ani	<i>C. G. Wheelhouse, Esq.</i>	290
67 On Excision of Rectum for Malignant Disease ..	<i>Dr. G. H. B. Macleod</i>	293
68 On the Limitations of Colotomy in Disease of the Rectum	<i>Dr. Charles B. Kelsey</i>	296

ORGANS OF URINE AND GENERATION.

69 On Urethral Fever—Death from Catheterism ...	<i>Dr. R. A. Kinloch</i>	300
70 On Supra-Pubic Lithotomy	<i>Sir Henry Thompson</i>	303
71 On Certain Modifications of the Supra-Pubic Operation for Stone or Tumour of the Female Bladder (<i>with woodcuts</i>)	<i>Ditto</i>	306
72 On a New Procedure for Removal of Small Calculi from the Bladder in Male Children	<i>Prof. T. Annandale</i>	308

ARTICLE.	AUTHOR.	PAGE.
73 On the Causation and Nature of Hypertrophy of the Prostate	<i>Reginald Harrison, Esq.</i>	310
74 On Tunnelling the Large Prostate	<i>Ditto</i>	314
75 On Continuous Drainage of the Bladder by Post-Prostatic Puncture	<i>E. H. Howlett, Esq.</i>	316
76 On Total Removal of the Penis and Testes for Malignant Disease	<i>C. G. Wheelhouse, Esq.</i>	318

AFFECTIONS OF THE SKIN, ETC.

77 On Topical Applications in Skin Diseases ..	<i>Dr. H. G. Brooke</i>	321
78 On the Treatment of Nævus by Electrolysis ...	<i>Dr. John Duncan</i>	323
79 On the Removal of Superfluous Hairs by Electrolysis	<i>Gilbert Smith, Esq.</i>	326
80 Report of the Treatment of Lupus	<i>Dr. James Stewart</i>	327
81 On the Practical Use of Lanolin in Skin and other Diseases	<i>Dr. Oscar Liebreich</i>	328

SYPHILITIC DISEASES.

82 On the Treatment of Gonorrhœa by Means of Grooved Bougies	<i>Dr. Leopold Caspar</i>	331
83 On Syphilitic Stricture of the Trachea	<i>Dr. J. Dreschfeld</i>	334
84 On Syphilis as a Cause of Phagedæna and Hospital Gangrene	<i>Professor Hutchinson</i>	336
85 On the Incubation-Period of Syphilis	<i>Ditto</i>	339
86 On the Relationship of Tertiary to Secondary Syphilis	<i>Ditto</i>	341
87 On the Antidotal Influence of Mercury in Syphilis	<i>Ditto</i>	345
88 On a Severe Form of Rupia	<i>Ditto</i>	348
89 On Syphilitic Ulcers of the Palate and Pharynx ...	<i>Ditto</i>	350
90 On the Non-Occurrence of Chronic Skin Diseases in Inherited Syphilis	<i>Ditto</i>	352
91 On the Symmetrical Synovitis of the Knee in Hereditary Syphilis	<i>H. H. Clutton, Esq.</i>	356
92 Three Cases of Sloughing Ulcer of the Penis ...	<i>Fredk. W. Lowndes, Esq.</i>	359

AFFECTIONS OF THE EYE AND EAR.

93 On the Causes of Atrophy of the Optic Nerve ...	<i>Arthur H. Benson, Esq.</i>	360
94 On the Surgical and Æsthetic Advantages of the Artificial Vitreous Body (<i>with woodcuts</i>) ...	<i>Dr. P. H. Mules</i>	366
95 On Examination of the Cornea and Lens by the Ophthalmoscope, having behind it a Strong Convex Lens... ..	<i>G. Hartridge, Esq.</i>	371
96 On a Case of Cysticercus of the Anterior Chamber (<i>with woodcuts</i>)	<i>Richard Williams, Esq.</i>	372
97 On Syphilis as a Factor in Ear Disease	<i>Dr. Edward Woakes</i>	374
98 On Removal of Osseous Tumours from the Ear ...	<i>George P. Field, Esq.</i>	376
99 On Ménière's Disease of the Ear... ..	<i>Dr. F. W. Pierce</i>	379

MIDWIFERY, AND DISEASES OF WOMEN, ETC.

ARTICLE.	AUTHOR.	PAGE.
100 On Laceration of the Os and Cervix Uteri, and Emmet's Operation	<i>Dr. Graily Hewitt</i>	382
101 On Recent Laceration of the Cervix Uteri and its Treatment	<i>Dr. Thomas A. Emmet</i>	387
102 On Laceration of the Perineum	<i>Ditto</i>	396
103 On the Prevention of Laceration of the Perineum in Primiparæ	<i>Dr. A. Temple</i>	392
104 On the More Frequent Employment of Forceps ...	<i>Dr. T. More Madden</i>	393
105 On Delivery in Brow Presentations	<i>M. Devars</i>	394
106 On Antelexion of the Uterus and its Clinical Significance	<i>Dr. William Goodell</i>	396
107 On the Results of Forcible Dilatation of the Cervix for Sterility and Dysmenorrhœa	<i>Ditto</i>	398
108 On Displacements of the Ovaries	<i>Dr. T. More Madden</i>	400
109 On a Case of Hysterectomy in which Removal of the Uterine Appendages had Failed to Arrest the Hemorrhage or Growth of the Tumour ...	<i>Lawson Tait, Esq.</i>	403
110 On Papillomatous Cystic Disease of the Broad Ligaments	<i>Dr. J. Greig Smith</i>	405
111 On the Treatment of Pelvic Abscess in Women by Incision and Drainage	<i>Dr. P. F. Munde</i>	408
112 On Pelvic Hæmatocele... ..	<i>(The late) Dr. Angus Macdonald</i>	410
113 On Puerperal Septicæmia and its Treatment ...	<i>Dr. Freeland Barbour</i>	411
114 On the Resuscitation of Apparently Dead-Born Children by Dr. Schultze's Method (<i>with woodcut</i>)	<i>Dr. Wm. L. Reid</i>	414

ARTICLES IN THE SYNOPSIS,

WHICH ARE NOT INCLUDED IN THE FOREGOING LISTS.

Milky Fluid from a Case of Ascites	<i>Dr. Duffey</i>	1
On Hæmaturia in Enteric Fever	<i>Dr. Dyce Duckworth</i>	2
Occurrence of Green Stools in Enteric Fever... ..	<i>Ditto</i>	2
On Parotid Abscess in Enteric Fever	<i>Ditto</i>	3
On the Use of Alum Whey and Malt Extract in Enteric Fever	<i>Ditto</i>	3
On M. Pasteur's Cases of Hydrophobia	<i>Editor of Lancet</i>	4
On a Case of Internal Anthrax	<i>John Poland, Esq.</i>	5
On the Application of Iced Cloths to the Abdomen in Pyrexia	<i>Dr. M'Call Anderson</i>	6
Subcutaneous Injection of Quinine in Malarial Affections and for Antipyretic Purposes ..	<i>Dr. Lauchlan Aitkin</i>	6
Hemorrhage from Large Vessels of the Neck in Scarlet Fever	<i>Dr. Henry Ashby</i>	7
On Scarlatinal Albuminuria	<i>Dr. W. T. Gairdner</i>	8

	AUTHOR.	PAGE.
On the Hypodermic Injection of Pilocarpin in Acute Alcoholism	<i>Dr. Josham</i>	9
On Six Cases of Alcoholic Paralysis	<i>Dr. W. B. Hadden</i>	9
Case of Amyotrophic Lateral Sclerosis	<i>Dr. Beevor</i>	12
On Cannabis Indica as a Narcotic	<i>Dr. H. Lewis Jones</i>	12
On Cardiac Disease in Chorea	<i>Dr. Samuel West</i>	13
On the Subcutaneous Injection of Cocaine for Production of Local Anæsthesia	<i>Dr. A. Landerer</i>	15
The Tendon Reflexes in Diphtheritic Paralysis	<i>Dr. W. R. Gowers</i>	16
On Functional Diseases of the Nervous System	<i>Ditto</i>	16
On Hyper-tonic Paresis	<i>Dr. Hughes Bennett</i>	18
On the Treatment of Lead-Poisoning	<i>Dr. T. Oliver</i>	18
On Chloride of Methyl Spray in Neuralgia	<i>M. Venay</i>	19
Successful Operations for Paraplegia of Potts's Disease	<i>Dr. Macewen</i>	19
On Peripheral Neuritis	<i>Dr. Thos. Buzzard</i>	20
Gouty Origin of Peripheral Neuritis	<i>Ditto</i>	21
Diversity of Manifestations in Peripheral Neuritis	<i>Ditto</i>	21
Prognosis in Cases of Peripheral Neuritis	<i>Ditto</i>	23
Case of Raynaud's Disease	<i>Dr. Bernstein</i>	24
Use of Chloride of Methyl Spray in Sciatica	<i>Dr. Debove</i>	25
On the Tendon Reflexes	<i>Dr. Hughlings Jackson</i>	25
Ditto	<i>Dr. Thos. Buzzard</i>	26
On a Case of Thomsen's Disease	<i>MM. Pitres and Dallidet</i>	28
On Urethan, a New Hypnotic	<i>Dr. von Jaksch</i>	29
Ditto	<i>Dr. A. S. Myrtle</i>	29
Ditto	<i>Dr. Saundby</i>	30
<hr/>		
On Asthma of the Fatty Heart	<i>Professor Cantani</i>	31
The Digitalis Group—Therapeutics of	<i>Dr. T. R. Fraser</i>	32
Strophantus in Cardiac Disease	<i>Ditto</i>	33
Adonis Vernalis in Heart Disease	<i>Professor Cervello</i>	33
On the Deliriums of Heart Disease	<i>Dr. B. W. Richardson</i>	34
On Heart Disease in Children—Rheumatic Origin of so-called Idiopathic Cases	<i>Dr. W. B. Cheadle</i>	34
Use of Digitalis in Mitral Stenosis	<i>Dr. W. H. Broadbent</i>	36
Nitrite of Amyl and Nitro-Glycerine Compared	<i>Dr. D. T. Leeck</i>	37
On Splenic Anæmia in Children	<i>Somma</i>	37
Case of Thoracic Aneurism Treated by Introduction of Steel Wire into the Sac	<i>Dr. Wm. Cayley</i>	38
<hr/>		
On the Use of Atropia in Acute Coryza	<i>Dr. R. Gray</i>	39
On the Use of Cocaine in Hay Fever	<i>Dr. J. M. Da Costa</i>	40
On the Treatment of Profuse Hæmoptysis	<i>Dr. Samuel West</i>	42
On the Necessity of Urging Expectoration in Certain Cases of Lung Disease	<i>Dr. Dyce Duckworth</i>	44
On Feeding by a Nasal Tube in Cases of Tracheotomy, &c.	<i>J. F. Buller, Esq.</i>	44
<hr/>		
On Two Successful Cases of Cholecystotomy... ..	<i>A. W. M. Robson, Esq.</i>	45
On the Treatment of Fæcal Accumulation	<i>Frederick Treves, Esq.</i>	49
Use of Massage in Fæcal Accumulation	<i>Ditto</i>	50
Hæmatemeses Neonatorum	<i>Dr. Sawtell</i>	51
On the Treatment of Intussusception by Insertion and Inflation	<i>R. Clement Lucas, Esq.</i>	51
Intussusception of Upper Part of the Jejunum of 21 Months' Standing... ..	<i>Dr. Goodhart</i>	52
On a Case of Jejunostomy	<i>C. H. Golding-Bird, Esq.</i>	53

	AUTHOR.	PAGE.
On Excision of Rectum for Malignant Disease ...	<i>Dr. G. H. B. Macleod</i>	55
Strangulated Hernia—Treatment of Sac ...	<i>Walter Rivington, Esq.</i>	55
Ditto Removal of Sac ...	<i>R. Clement Lucas, Esq.</i>	57
Two Cases of Strangulated Umbilical Hernia ...	<i>Ditto</i>	58
Suppuration around the Vermiform Appendix Treated by Abdominal Incision ...	<i>R. J. Godlee, Esq.</i>	60
Ulcer of Stomach Perforating the Heart ...	<i>Dr. Finny</i>	61
<hr/>		
On Acetonæmia ...	<i>Dr. F. W. Pavy</i>	62
Albuminometry—Esbach's Tubes ..	<i>T. E. Blomfield, Esq.</i>	63
Elements of Prognosis in Bright's Disease ...	<i>Dr. Austin Flint</i>	65
Calculus of Female Bladder of Large Size Removed by Vesico-Vaginal Incision ..	<i>Dr. R. V. Macan</i>	66
Diabetes Insipidus Combined with Diabetes Mellitus..	<i>Dr. F. W. Pavy</i>	66
On Cock's Operation in Extravasation of Urine ..	<i>Thos. M. Jones, Esq.</i>	68
Nephrectomy—Its Indications and Contra-Indications	<i>Dr. S. W. Gross</i>	68
On Nephrectomy for Suppurating Kidney ...	<i>Bruce Clarke, Esq.</i>	69
Action of Nitro-Glycerine on Nephritis ...	<i>Burzhinski</i>	69
On Peri-Renal Cysts ...	<i>C. G. Wheelhouse, Esq.</i>	70
New Method of Post-Prostatic Puncture of the Bladder for Continuous Drainage ...	<i>E. M. Howlett, Esq.</i>	70
Prostatitis with Hyaline Casts ...	<i>Sir Andrew Clark</i>	71
On Supra-Pubic Lithotomy ...	<i>Sir Henry Thompson</i>	71
Use of Stigmata Maidis for Vesical Catarrh ...	<i>G. St. George, Esq.</i>	72
Treatment of Varicocele by Excision... ..	<i>Mayo Robson, Esq.</i>	74
<hr/>		
On Subcutaneous Resection for Acute Necrosis ...	<i>Bernard Pitts, Esq.</i>	75
Amputation at the Knee-joint by Disarticulation ...	<i>Thomas Bryant, Esq.</i>	76
On the Relative Advantages of Poroplastic and Plaster Jackets in Angular Curvature of Spine ...	<i>W. J. Walsham, Esq.</i>	78
Peroxide of Hydrogen as an Antiseptic Dressing ...	<i>John Wood, Esq.</i>	79
Treatment of Congenital Dislocation of Hip ...	<i>William Adams, Esq.</i>	80
Flat Foot—Its Treatment by Astragaloid Osteotomy...	<i>Professor Stokes</i>	82
On Fractures of the Arm with Injury to Nerves ...	<i>Thomas Jones, Esq.</i>	82
On Fracture of Condyles of Humerus ...	<i>Dr. Saml. W. Smith</i>	83
Treatment of Fracture of the Thigh in Children ...	<i>S. Wilson Hope, Esq.</i>	84
On Gun-Shot Wounds of Knee ...	<i>Sir Wm. MacCormack</i>	85
Malformation of Joints consequent upon Syphilitic Periostitis in Infancy ...	<i>Prof. J. Hutchinson</i>	86
On Sarcoma of Bones after Injury ...	<i>A. Pearce Gould, Esq.</i>	87
A Modification of the Continuous Suture (<i>with woodcut</i>)	<i>Dr. Zesas</i>	89
Removal of Ungual Exostosis ...	<i>F. A. Southam, Esq.</i>	90
<hr/>		
Acne, Uma's Treatment of ...	<i>Dr. H. G. Brooke</i>	91
On the Treatment of Acne Rosacea ...	<i>Ditto</i>	91
On the Treatment of Freckles ...	<i>Ditto</i>	91
On the Treatment of Furunculosis ...	<i>Ditto</i>	91
Treatment of Chronic Gouty Finger... ..	<i>Dr. J. Kent Spender</i>	92
On Gouty Nails (<i>with woodcut</i>) ...	<i>Dr. J. M. Fothergill</i>	92
On the Treatment of Lupus... ..	<i>Dr. H. G. Brooke</i>	94
Improved Treatment of Nævus by Sodium Ethylate (<i>with woodcut</i>) ...	<i>Dr. B. W. Richardson</i>	94
Treatment of Pityriasis Versicolor ...	<i>M. Vigier</i>	95
Treatment of the Port Wine Mark ...	<i>Dr. John Duncan</i>	95

	AUTHOR.	PAGE.
Treatment of Pruritus by Boro-Glyceride	<i>Dr. Dyce Duckworth</i>	96
Use of Chrysarobin and Salicylic Acid in the Treatment of Psoriasis	<i>Dr. Geo. H. Fox</i>	96
On Purpuric Eruption due to Administration of Iodide of Potassium... ..	<i>A. Quarry Silcock, Esq.</i>	97
On the Evidence of Cure of Ringworm	<i>Dr. Alder Smith</i>	97
On the Treatment of Ringworm	<i>Dr. Saerlis</i>	98
On a Curious Tumour of the Neck	<i>Prof. J. Hutchinson</i>	98
<hr/>		
Treatment of Gonorrhœa by Grooved Bougies	<i>Dr. L. Caspar</i>	99
Treatment of Gonorrhœal Rheumatism	<i>Dr. T. R. Fraser</i>	100
On Cases of Gonorrhœa-Syphilis	<i>Prof. J. Hutchinson</i>	100
Ringworm of the Tongue in Inherited Syphilis	<i>Ditto</i>	101
Lupus due to Inherited Syphilis	<i>Ditto</i>	101
Immunity from Chronic Skin Diseases in Inherited Syphilis	<i>Ditto</i>	102
Suppurating Bubo and Inguinal Scars as Evidence of Syphilis	<i>Ditto</i>	103
On the Administration of Iodide of Potassium in Milk	<i>Dr. E. L. Keyes</i>	104
Case of Syphilitic Ulceration of the Intestine	<i>A. Blackmore, Esq.</i>	105
Syphilitic Ulcerative Tracheitis	<i>A. Q. Silcock, Esq.</i>	106
<hr/>		
Treatment of Conical Cornea by Operation	<i>Charles Higgins, Esq.</i>	107
Treatment of Conjunctivitis by Corrosive Sublimate... ..	<i>Dr. Bieloff</i>	108
Early Treatment of Convergent Strabismus... ..	<i>W. Adam Frost, Esq.</i>	108
Case of Diabetic Retinitis	<i>E. Nettleship, Esq.</i>	109
Ear Disease in Diphtheria and Scarlet Fever	<i>Dr. Thomas Barr</i>	109
Treatment of Purulent Disease of Middle Ear	<i>Ditto</i>	110
Eucalyptus Air in Cataract Operations	<i>Bendelack Hewetson, Esq.</i>	111
Hemorrhagic Amblyopia cured by Dilatation of the Sphincter Ani	<i>Robt. N. Hartley, Esq.</i>	113
Iritis treated by the Combined Use of Cocaine and Atropine	<i>W. H. Jessop, Esq.</i>	114
On Pemphigus, or Essential Shrinking of Conjunctiva	<i>Anderson Critchett, Esq.</i>	116
Diagnosis of the Syphilitic Ear	<i>Dr. E. Woakes</i>	116
<hr/>		
On Axis-Traction Forceps	<i>Dr. More Madden</i>	116
Use of Iodoform in Chronic Uterine Catarrh... ..	<i>Dr. Kugelmann</i>	116
Dysmenorrhœa treated by Forcible Dilatation	<i>Dr. W. Goodell</i>	116
Treatment of Labour Delayed at Pelvic Brim	<i>Dr. Samuel Sloan</i>	117
Propositions for Guidance in Cases of Labour Obstructed at the Pelvic Brim	<i>Ditto</i>	118
On the Prevention of Mammary Abscess	<i>Dr. Arthur W. Edis</i>	119
On Mercurial Intra-Uterine Injections	<i>Dr. More Madden</i>	119
The Third Stage of Labour	<i>Dr. Berry Hart</i>	119

SYNOPSIS.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS, SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS DURING THE HALF-YEAR. ARRANGED ALPHABETICALLY.

AFFECTIONS OF THE SYSTEM GENERALLY.

ASCITES.—*Milky Fluid in.*—At the Academy of Medicine in Ireland, on Dec. 4, Dr. Duffey exhibited a specimen of a milky fluid removed by paracentesis during life from the peritoneal cavity of a single woman, aged fifty-two; and also portions of the viscera from her body. He briefly referred to the different forms in which a fluid resembling milk is met with pathologically, and said that he believed many of the so-called cases of “chylous” ascites were so only in name. In Dr. Duffey’s patient the fluid was certainly not chylous. The case was one of chronic diarrhœa of five months’ duration, during the last six weeks of which there was in addition ascites. The abdomen was tapped three times. On each occasion a milky fluid was withdrawn. Erysipelas supervened after the last tapping, and the woman, who had become very weak and emaciated, died. On post-mortem examination the parietal peritoneum was found to be thickened and opaque, and, as well as the costal pleura, sprinkled over with small white fibrous nodules, which were likewise plentifully bestrewed over the greatly thickened omentum and the serous envelope of the intestine. In Douglas’s pouch there was a considerable deposit of nodules, which in some places had coalesced and looked like caseous masses commencing to soften. There were enlarged glands in the lesser omentum and in the vicinity of the cæcum. Numerous small ulcers were found in the cæcum itself and adjoining portion of the large intestine; and both segments of the valve were much thickened and ulcerated. The thoracic duct and its branches appeared quite normal. Dr. Duffey believed the case to be one of tuberculosis, but he could not say what was the cause of the colour of the fluid, or what connection, if any, there was between it and the chronic peritonitis. So far as these two circumstances went, the case seemed to support the conclusion recently advanced by M. Letulle (Rev. de Méd., Sept. 1884), to the effect that a chronic inflammatory element is the most constant character in the genesis of such chyliform effusions. (Lancet, Jan. 16, p. 110.)

ENTERIC FEVER.—*Hæmaturia in.*—I have twice known cases to die where hæmaturia occurred during enteric fever. In both it was apparently of renal origin, and was present at the end of the illness. In one case of a man, æt. 25 to 30, in which death occurred from perforation, beyond redness of the cortex of the kidneys nothing was found to explain the hemorrhage, no ulceration being met with on the urinary tract. In the other there was a prostatic abscess, and embolic masses probably reached the kidneys before death and led to the hemorrhage. I have seen several other cases in which the symptom has passed away, and led to no subsequent trouble. (Dr. Dyce Duckworth, St. Bartholomew's Hospital Reports, 1885, p. 105.)

Occurrence of Green Stools in Enteric Fever.—I have now seen several cases of enteric fever in which the patients passed at some time green stools. Some of these occurred in Dr. Andrew's wards. Green stools were likewise passed in two remarkable cases of his in which there was severe ulceration of the large intestine, which led to hepatic abscess in each instance, the ulceration being quite peculiar, and unlike that of ordinary dysentery. This autumn I have met with green shreds and particles in the ordinary (ochrey) stools of two patients suffering from enteric fever. These small masses closely resembled in one case particles of boiled green peas, and in the other shreds of mucous membrane deeply bile-stained. Microscopically, their structure was evidently that of sloughs of the mucosa. Chlorophyll was not detected in one of them by the spectroscope at the hands of my house-physician, Dr. Garrod. In another case of well-marked enteric fever with eruption and enlarged spleen, the patient, a male, æt. 24, passed soon after admission, about the end of the second week, a bright green motion. On standing, this separated into two layers. The upper one was a turbid green fluid, the lower one resembled a thin paste of vivid emerald green colour, consisting of finely granular masses like mashed pistachio nuts. The next stool was much darker in colour, separated into two layers, the lower one being of olive-green or boiled-cabbage colour. The third stool was of the ordinary ochrey character. At the end of the third week some patches of blood were passed in the stools. These usually fall to the bottom of the vessel, and must be sought there. Opium was freely used in small enemata. This controlled the bowel-actions, and was generally of much avail. In a day or two later, some small clots of blood were again passed, the temperature having fallen below normal, and the pulse become dicrotous, 112-140. Dark-green stools were again passed from time to time, alternating with ochrey ones. Some of these masses sank to the top of the lower layer in the vessel, and had shreds of sloughed mucous membrane and blood mixed up with them. A

relapse subsequently took place. It is difficult to account for stools of this character. Dr. Andrew, from his experience, is disposed to connect their occurrence with the existence of ulceration, as well in the large as in the small intestine. It is noteworthy that a stool presenting this peculiarity should be followed not long afterwards by one of ordinary enteric fever character, having no apparent relation to the former in respect of colouring matter. Nothing in the diet or medicinal treatment will account for this peculiarity. In the above case there was no doubt of the presence of deep ulceration. (Dr. Dyce Duckworth, *Ibid*, p. 110.)

Parotid Abscess in Enteric Fever.—Parotid abscess is not a common complication in enteric fever. It is more frequently met with in typhus fever. It is always associated with severe cases, and the result is very often fatal. Suppurative parotitis occurred 16 times in 1,600 cases of enteric fever at Basle, 7 of these proving fatal. Hoffmann, who affords these statistics, believes that the close and tough texture of the fascia enclosing the parotid leads to greater pressure and severer inflammation in it than occurs in other salivary glands and the pancreas, which are all affected by parenchymatous changes in enteric fever. Its occurrence would seem to point to a strong impregnation with the specific poison of the fever. There was clearly an abortive effort at suppuration on the right side in this case. Unwearied attention on the part of the nursing staff had much to do with saving this man's life. A case occurred last year in Faith Ward, under Dr Church's care, in which double parotid bubo was present. By his permission I record the main features of it. A little girl, æt. three years, had well-marked but rather mild enteric fever with eruption. On the thirteenth day the left parotid gland began to swell, and the temperature rose from normal to 103.2° . Shortly afterwards the right gland swelled. On the sixteenth day the swelling was much increased, and the following day first the left and a little later the right bubo burst into the adjacent external auditory meatus. The temperature fell forthwith. Counter-openings were made on each side to secure drainage of pus. The child remained very ill for three weeks, but made subsequently an excellent recovery. In 1883, in 146 cases of enteric fever in the hospital, two had parotid bubo, one ending in abscess. In 1884, in 126 cases, one ended fatally with parotid bubo. (Dr. Dyce Duckworth, *Ibid*, p. 114.)

Use of Alum Whey and Malt Extract in Enteric Fever.—I have found this form of nutriment of use in cases marked by troublesome diarrhoea, especially in the later stages. When it is desirable to prevent milk-curds from irritating deep ulcers and adding to the general mucous catarrh, and when hemorrhage is

at the same time threatened or actually present, alum-whey seems specially indicated. The suggestion is due to the late Dr. Murchison. The alum is added to hot milk in the proportion of a drachm to a pint; this is then boiled and set aside for an hour or two, and the curd separated by passing the whey through muslin. It is not unpleasant. Whey made in the ordinary manner with rennet is likewise very useful when milk becomes distasteful in a protracted case. All sick-nurses should be instructed in making it. In cases of deep ulceration in enteric fever, extract of malt is useful as an unirritating form of nourishment. It may be given with milk and lime-water, or alone with water in the form of Mellin's food, or any of the well-prepared extracts now readily procurable. (Dr. Duckworth, *Ibid*, p. 117.)

HYDROPHOBIA.—*M. Pasteur's Cases.*—The total number of cases that have now been treated for the prevention of hydrophobia amounts to 350. The first 200 of the cases appear to have been submitted to the preventive inoculations more than two months ago. M. Pasteur asserts that statistics prove that in the majority of cases of hydrophobia in man the disease develops within sixty days of the receipt of the bite of a rabid animal. Consequently he claims that his treatment has been most successful, seeing that not a single case submitted to him, within a reasonable time after the bite, has developed any signs of hydrophobia. We confess that such a conclusion is in every way reasonable: it is reasonable, not so much from the statements as to time, as from the circumstance that so large a number is dealt with. It appears to be inconceivable that of 200 cases of certified bites from rabid dogs not one should be followed by hydrophobia if the treatment be not assigned as the cause of the immunity. We could explain away the immunity if only a few cases were concerned, but hardly, we think, where so large a number of individuals have been bitten more than sixty days ago, and yet without any becoming the subject of hydrophobia. Only one case, which Pasteur unwillingly treated, has succumbed to the disease. This was the case of a girl who had been bitten thirty-seven days before he saw her. Symptoms of the disease appeared ten days later, and, if the case proves anything, it goes to support M. Pasteur's opinion, for the fatal result occurred well within the period above mentioned as the most probable time for the appearance of the disease. In science, and especially in medical science, caution at all points must be exercised; but if the success hitherto achieved by the Professor be maintained and strengthened by the further experience of a few more months, the method will prove a boon to humanity, a gain to science, and justly merits the applause of the human race. (Editor of *Lancet*, March 6, p. 457.)

[The Paris correspondent of the *Lancet*, writing on May 11th,

says:—In completion of his report, submitted about a month ago to the Academy of Medicine, M. Pasteur read another at the meeting last week, in which he expressed himself as follows: “On April 12th last the number of persons inoculated for hydrophobia was 726; at the present moment (May 4th) it is 950. Since the time that that report was presented I have had confirmation of what I then stated—viz., that the mortality caused by the bite of rabid wolves was very considerable. Very frequently this mortality is 100 per cent., and the duration of the incubation is always very short, being sometimes only thirteen days or fifteen days. Very frequently also this duration does not exceed eighteen to twenty days; the bite of the dog being rarely of such duration. Six deaths have occurred among those who have been inoculated, without including the little girl Pelletien, who died at the commencement of these inoculations. The six cases were Russians, five of whom were men bitten by wolves, and the other a woman bitten by a mad dog, all of whom died of hydrophobia, and in whom also the wounds were of a very grave nature.” (Pasteur concluded his paper by reiterating his unqualified belief in the success of his process.)]

INTERNAL ANTHRAX.—At the Pathological Society, on Dec. 15, Mr. Poland read notes of a case of internal anthrax that occurred in a man aged twenty-three, a bargeman. On the day that his illness began, he had been unloading Chinese hides. It was on the third day of his illness that the symptoms became severe, and death followed in fifteen hours. Delirium, drowsiness, red and raw tongue, peculiar smell with the breath, unconsciousness, with violent tetanic spasms of both arms and legs, which lasted a few minutes, pulse very rapid, temperature 106° at times, and Cheyne-Stokes' respiration, were the main symptoms. At the necropsy most extensive hemorrhages were found in the pia mater beneath the arachnoid. In the mediastinum there was much yellow gelatinous serum; many ecchymoses were seen on both pleural surfaces; there were many infarctions in the lungs. The blood was nowhere clotted, but dark and fluid. There were four well-defined sloughing patches on the posterior wall of the stomach; the gastro-intestinal mucous membrane was swollen and œdematous. Many valvulæ conniventes showed large black sloughs, with an intensely congested area around them; the peritoneum over them was crimson-coloured, without any lymph. There was a slough in the centre of the left buttock. The skin over the right scapula showed a large ecchymosis, and other hemorrhages were found in different parts of the skin. No characteristic bacilli could be detected anywhere; this was possibly owing to rapid decomposition, as Böllinger had pointed out that rapid decomposition destroyed the bacilli. (Mr. John Poland, *Lancet*, Dec. 19, p. 1140.)

PYREXIA.—*Application of Iced Cloths to the Abdomen.*—The application of iced cloths is made in this way. The night dress is pulled well up over the chest, so as to avoid any possibility of its being wet; and, for a similar reason, a piece of Macintosh is placed across the bed under the patient's body, and another piece between the iced cloth and the bed clothes. The usual bed-clothes are arranged so that they reach up to the lower part of the chest only, which latter is covered with a separate blanket in order to prevent unnecessary exposure while the iced cloths are being changed. Two pieces of flannel are employed in the process, each being sufficiently large, when folded into four layers, to cover the whole front and sides of the abdomen. One of these, wrung out of iced water, is applied, while the other is left in a large basin filled with iced water at the side of the bed. The pieces of flannel are changed every minute, or so often that *they still feel cold* when removed. The changing of the flannel, especially if two persons are in attendance,—one to remove the bed-clothes and the flannel, the other to apply the piece which is freshly iced,—can be effected with great ease and rapidity, and without exposing the patient to any injurious extent, if the preliminary arrangement of the bed-clothes is made in the way I have indicated. (Dr. M'Call Anderson, Edinburgh Med. Journal, Sept., p. 211.)

QUININE IN MALARIAL AFFECTIONS AND FOR ANTIPYRETIC PURPOSES.—*Subcutaneous Injection of.*—The occasional necessity for the injection of quinine subcutaneously, not only in severe malarial affections, but also for antipyretic purposes, must have compelled many physicians to reflect on the best methods of avoiding the disagreeable consequences which too often follow such a use of the salts of that drug. Of these, the most important have been one of a form of septicæmic poisoning, one of violent inflammation in the course of the veins, and one of a long persistent and very painful sciatica, all of which seemed certainly to be justly attributable to such hypodermic injections. Less important local evils are, of course, relatively much more common. Irritability and extensive erythema, ulceration of the skin and abscesses at the points of injection, and painful and lasting inflammatory indurations of the subcutaneous cellular tissue, are the most frequently observed of the minor injurious effects. Even when no local mischief ensues, the mere temporary pain, accompanying the hypodermic injection of salts of quinine, has been so marked as to induce many practitioners to try to mitigate it by adding morphine or atropine to the solutions they employed. The method I have latterly adopted has given decidedly better results than any previously tried, and can be stated in a few words. The two best salts of quinine to use are the bisulphate and hydrochlorate. Both are fairly soluble without acids,

but the bisulphate has the advantage of being considerably the cheaper. One grain of that salt will dissolve readily in six minims of equal parts of the purest glycerine and of distilled water at the temperature of the body, and when thrown, at that temperature, into the looser subcutaneous cellular tissue—the only part into which quinine should be injected—will be rapidly absorbed without deposition of any crystals of the drug. To this solution, two per cent. of pure carbolic acid must be added. Thirty minims of such a solution, containing five grains of the bisulphate, may then be used for one injection from a syringe of double the average capacity—now, as a rule, just about fifteen minims; and although it is probably better, as previously mentioned, to inject less at one point, no local or general injurious results have followed the numerous applications of the maximum quantity stated, which have been made since I have been in the habit of adding the carbolic acid to the diluted glycerine-solution of the quinine. The local anæsthetic action of the carbolic acid, too, is unquestionably of great value in diminishing the pain attending the hypodermic use of such an irritating medicine as quinine. (Dr. Lauchlan Aitkin, Rome, British Med. Journal, Oct. 10, p. 695.)

RHEUMATOID ARTHRITIS.—*Local Treatment in Early Stages.*—

Douching and shampooing are therapeutic kinsfolk to bathing, and as a rule all should go together. “Wet douching” is preferable when joints are sensitive and muscular action is attended by labour and pain. But for rousing structures out of drowsiness, and for stimulating them when afflicted with vital apathy, few agencies are so useful as “dry” hot and warm douches (the body being out of water). The thermal arrangements in Bath have been lately much improved; and a room has been attached to the Queen’s Baths, in which all the best appliances of Aix-les-Bains can be enjoyed, with foreign *doucheurs* and *doucheuses*. Shampooing is a technical mystery which cannot be too highly praised. The younger the patient who is menaced with rheumatoid arthritis, the more important does it seem to carry out stroking (*effleurage*) of the joints and tender kneading (*petrissage*) of the neighbouring muscles. The limbs should be always in the least constrained posture, and the application of bandages and laced supports will test the surgical instinct of the “wise physician.” It cannot be said that the external use of drugs does any good; but I have been long accustomed to order the mild inunction every night of the iodide of potassium and soap liniment. (Dr. J. K. Spender, p. 125.)

SCARLET FEVER.—*Hæmorrhage from Large Vessels of Neck in.*—

Dr. Ashby, of the Pendlebury Hospital, publishes a case of ulceration into the great vessels of the neck, fatal ten days after

ligature, and remarks that "although sloughing into the internal carotid from the throat is comparatively common in scarlet fever, there are very few cases recorded where the hemorrhage has occurred from without. Among others, Dr. Kennedy, in his account of the epidemic in Dublin 1834-42, reports three cases, in two of which the vein alone was opened into, and in the third there was no post-mortem. In the latter and one of the other cases the blood escaped from an opening which had been made into an abscess some days previously; in the remaining case a large slough formed, dissecting out glands, muscles, and blood-vessels. Fatal hemorrhage through the external auditory meatus has occurred several times, as recorded by Graves, Professor Porter, and Dr. P. J. Hynes, and in one such case the child recovered after the carotid had been ligatured by Mr. Bennett May. It would seem that the destructive processes leading to this perforation of the vessels are of two kinds. In the one, the periglandular cellulitis and abscess is followed by softening and dissolution of the tissues (colliquative necrosis). In the other, large sloughs form and separate, laying bare many of the deeper structures; but, generally speaking, the vessels, and more particularly the arteries, are the last to be destroyed, and several times complete recovery has ensued where the sheath of the carotid and the internal jugular has been exposed without the occurrence of hemorrhage." (Dr. Ashby, *Lancet*, Feb. 13, p. 302.)

SCARLATINAL ALBUMINURIA.—At the Royal Medico-Chirurgical Society, on Nov. 10th, a paper was read on Scarlatinal Albuminuria and the Pre-Albuminuric Stage, studied by Frequent Testing. This paper, communicated by Dr. Gairdner, gives the results of the examination of the urine of 180 cases of scarlet fever. Special attention is devoted to the first appearance of blood and albumen for the purpose of investigating the exact condition of the urine in the so-called pre-albuminuric stage. The subject is considered under five heads:—1. Period of occurrence of scarlatinal albuminuria. In this section the cases investigated are divided into two classes: (*a*) Cases of initial albuminuria occurring during the first eight days of the fever, while the symptoms are still acute; (*b*) Cases of late albuminuria occurring at any subsequent period when the more acute symptoms are subsiding or have already disappeared. This classification is confessedly arbitrary, yet may be found of some practical value. 2. Its frequency. On account of the limited number of cases examined, the results of the investigations upon this point are not, in themselves, of any great importance; but the frequency of mild and evanescent attacks of nephritis in scarlet fever is brought out very distinctly. The evidence seems to favour the view that nephritis is a feature of scarlet fever almost as essential as the rash or sore-throat. 3. The relations which

blood and albumen bear to each other in the urine of scarlatinal nephritis are of importance mainly in bringing out the fact that the so-called pre-albuminuric stage is a condition which is of somewhat infrequent occurrence, and in demonstrating the existence of what might be called a post-albuminuric stage, in which the urine has characters very similar to that of the pre-albuminuric stage. 4. Pre-albuminuric stage, so-called. In this section the views brought forward differ considerably from those generally accepted. The presence of albumen as well as of hæmoglobin in this stage is demonstrated. The same is found to be the case in the post-albuminuric stage. The presence of blood-corpuscles and of casts in both stages is also shown. 5. In this section treatment is briefly touched upon. A table is added at the end of the paper giving an epitome of the cases in which albuminuria existed. (Dr. W. T. Gairdner, *Lancet*, Nov. 14, p. 898.)

AFFECTIONS OF THE NERVOUS SYSTEM.

ACUTE ALCOHOLISM.—*Hypodermic Injection of Pilocarpin in.*—

Dr. Josham thus graphically describes the action of one-third grain of this drug hypodermically injected in persons suffering from intoxication. Its sobering effects are remarkable. After the sleep, the patient arouses perfectly rational and subdued, a consummation of no little import, as all know who have to treat victims of alcohol, since it renders them amenable to moral influence. The transformation wrought on the physical appearance is almost marvellous. The tense, red, bloated countenance, the bleared congested eyes, and general repulsive facial aspect, pass away. The skin looks pale, clean, and soft, the features calm and easy, the eyes clear, or only with a slight yellowish fringe. Clothed in such an innocent guise, the subject of a recent debauch might easily deceive even an expert. There are three ways in which the pilocarpine doubtless exercises its therapeutic influence in alcoholism: (1) by lowering cerebral blood-pressure; (2) by eliminating alcohol; (3) by increasing the absorption of oxygen. (*Medical Record*, Dec., p. 520.)

ALCOHOLIC PARALYSIS.—[In the *Lancet* for Oct. 3 and Oct. 10, Dr. Hadden, of St. Thomas's Hospital, publishes an interesting series of 6 cases of paralysis following upon alcoholic excess. The striking features of the cases may be briefly enumerated: 1. Marked loss of voluntary power affecting all the limbs, but especially the legs, with usually a corresponding amount of wasting; 2. More or less perversion of sensation, amounting in some cases to anæsthesia; 3. Pains in the affected limbs; 4. The tendon reflexes were invariably absent, and the cutaneous reflexes were preserved in some regions only; the bladder and rectum were affected in one case only; 5. The Faradic reaction

was usually lost, as well as in some instances such an alteration of the galvanic reactions as might be described as a "reaction of degeneration." All the cases recovered after a more or less prolonged period of treatment. Dr. Hadden says he has seen only two cases of alcoholic paralysis in which death supervened, and in these two instances sufficient changes in the liver were found to explain the fatal result. It would seem from Dr. Hadden's experience that in cases of alcoholic paralysis where no serious implication of the viscera is manifest, a good result may with confidence be hoped for. The cases given in the paper show in a most marked manner how widespread, and at times heterogeneous, the manifestations of alcoholic intoxication of the nervous system tend to be. It will be well to give here a brief abstract of the report of each case. *Case 1.*—A female, æt. 32, had drunk much brandy for three years. There were pains in the soles of the feet with hyperæsthesia. She could walk fairly, but was inclined to fall on turning; the knee-jerk was absent. She recovered in fourteen days without any special treatment. *Case 2.*—A married woman, æt. 38, was suspected of drinking gin to excess for three years. She was suddenly seized with loss of power in the legs, followed by pains in the limbs and delusions. The legs became much wasted and semi-flexed, and painful on passive extension. The superficial and deep reflexes were absent. There was no affection of the bladder or rectum. During her stay in hospital she gained rapidly in weight, and the legs became plumper. Hypophosphite of lime was administered internally, and the galvanic current systematically applied to the affected parts. *Case 3.*—Male, æt. 39, had drunk heavily for some years, and had had hæmatemesis and piles. There had been shooting pains in the legs for some months, soon followed by loss of power. The arms also became affected at a later stage, and there was much delusion and hallucination. The legs were bent at the knees, and extension was painful. Wasting was well marked, and sensation was much impaired. The tendon and skin reflexes were absent. There was marked wasting with weakness of extensors of the hand. The bladder and rectum were not affected. After prolonged treatment by galvanism, and the administration of nux vomica and quinine, he made good progress towards recovery. *Case 4.*—Female, æt. 41, had drunk gin to excess for some time. For months she had suffered from numbness and shooting pains in the lower limbs, and the arms were similarly affected. The legs were weak, without being wasted, and the tendon reflexes were absent. There was sleeplessness from pain, and also delirium. All the muscles of the upper limbs were wasted and feeble. She recovered after six months' treatment. *Case 5.*—Female, æt. 22, was reasonably suspected of alcoholic excesses. There had

been epileptiform seizures, much mental disturbance, and constant choreiform movements of the arms. The legs were thin and drawn up, the knee-jerk was absent, and sensation was much impaired. The rigidity and wasting increased. The Faradic reaction was lost in almost all affected muscles, the evacuations were passed involuntarily, and bed-sores began to form. In eleven months she was able to walk, the power and nutrition of the limbs were steadily improving, and the mind was clear. *Case 6.*—Male, æt. 48, was seized with stiffness and weakness of the limbs a few hours after a drinking bout, in which he had caught a chill. When seen, he had slight power of flexion, otherwise the legs were quite paralysed. The knee-jerk was absent. The arms were weak and wasted. The right facial nerve became paralysed. Bed-sores formed on the sacrum and on the heels, but the bladder and rectum remained unaffected. After four months of treatment, he made a complete recovery. Dr. Hadden concludes a very important and instructive paper with the following remarks upon the treatment of alcoholic paralysis:—"In the first place, the total withdrawal of alcohol should be enforced, and not only so, but future abstinence enjoined; no medium course is allowable in such cases. As regards drugs, I have little to say. In one of the above-described cases *nux vomica* had a decidedly beneficial effect on the obstinate constipation, but its action over the paralysed extremities could not be determined. Iodide of potassium in my experience is useless. Bromide of potassium and hydrate of chloral are serviceable in allaying the mental excitement which is so often present. In the treatment of the paralysis the only trustworthy therapeutic agent is the constant current. Its use may be required for months. Nothing appears more hopeless than some of these cases of alcoholic paralysis, and nothing really is more hopeful, provided only that the treatment by the constant current is persevered in. When organic changes in the viscera are present, such as cirrhosis of the liver, the outlook will be less promising, and a fatal result may be unavoidable. Nevertheless, treatment even in such cases as these is not altogether without avail." (Dr. W. B. Hadden, *Lancet*, Oct. 10, p. 662.)

Alcoholic Paralysis.—"Dropped Feet" *in.*—In general terms, it may be said that, just as in a case of lead paralysis we expect to find dropped wrists, so in a case of alcoholic paralysis we look for dropped feet. I would go further, even, and say that if we meet with a case of dropped feet—a paraplegic condition affecting with marked preponderance the anterior tibial group of muscle—we should be on the alert to inquire respecting the possibility of alcohol being a cause. Let me not be misunderstood. The existence of this condition is not alone a proof of habits of excess, but it is so extremely constant in cases of alcoholic paralysis that

we should be wanting in our duty if we failed to bear this in mind, and direct investigation accordingly. This is, of course, a delicate matter, and on more than one occasion I have observed a look of somewhat indignant surprise on the face of the medical attendant of whom the inquiry has been made. But we have no more right to omit the inquiry than we should have to avoid examining into the possibility of lead-poisoning when a case of dropped wrist comes under our observation. It is especially when we find not only the extensors of the feet but those of the hands paralysed, and also when there are some sensory disturbances as well as motor, that we shall do well to bear in mind the possibility of alcohol being at least a factor. Where careful observation shows that the lower extremities are alone involved, the upper extremities being quite normal as regards strength, sensibility, and electrical reaction, it will usually, I think, be found that the influence of alcohol may be put out of the question. It is evident that there is but little likelihood of the effects of alcohol being limited to certain extremities; but, as I have said, it is very common for the legs to show the disorder before the arms—and supposing that abstinence takes place at this point, it is perhaps conceivable that the latter might escape. This, I should think, must be extremely uncommon. (Dr. Buzzard, p. 149.)

AMYOTROPHIC LATERAL SCLEROSIS.—At the Medical Society, on Dec. 7, Dr. Beevor showed a case of Amyotrophic lateral sclerosis in a woman aged twenty-eight, a tailoress. The disease began gradually about two years ago with weakness and wasting of the right hand, soon followed by the left hand; walking had been difficult for eighteen months. The interossei and small muscles of the hand were much wasted and powerless; the extensors of the fingers were weak, and also the flexors; the hands were becoming “claw-shaped”; some of the other muscles of the arms were affected; the joints were slightly rigid. There was no wasting of the legs or loss of movements in them, but the joints were stiff, and in walking the toes caught the ground and the patient swayed from side to side. The knee-jerks were excessive, and there was slight ankle-clonus. Taps on the radius showed excessive deep reflexes of the arm. The speech was slow. Fluid occasionally regurgitated through the nose. There was no clonus of the lower jaw. (Lancet, Dec. 12, p. 1096.)

CANNABIS INDICA AS A NARCOTIC.—This drug has proved of great use in a number of cases where I have desired to produce sleep, especially when sleeplessness was accompanied by delirium. In the delirium of typhoid fever and erysipelas, and in delirium tremens, it is most valuable, a few doses being sufficient to give refreshing sleep. It is important to give the drug in sufficiently

large doses. Two to three grains of the extract can be taken in the form of pill every four or every six hours; frequently the first dose is sufficient. I now prescribe *cannabis indica* as the routine treatment in all cases of delirium tremens coming under my care, whether simple or complicating injury or disease. In only one case has there been complaint of hallucinations. It had been ordered for a case of typhoid fever, with much sleeplessness, in an excitable young woman; after two or three doses she asked that the drug might be discontinued, saying that it caused her to see visions of beautiful gardens and the like. All the other patients have been hospital cases. It is possible that among educated people mental disturbance would be more frequent. I have heard of one case where two grains of the extract were said to have made a woman temporarily quite mad. Personally doses of the extract of Indian hemp, up to four grains, produce a mild narcotic effect, the only abnormal sensations noticed being numbness of the extremities and slight mental confusion. (Dr. H. Lewis Jones, Practitioner, Oct., p. 251.)

CHOREA.—*Cardiac Disease of.*—It has always been allowed, I think, since the days when Dr. Hughes first drew attention to the connection between rheumatism and chorea, that the heart affection in cases where arthritis is concomitant is a rheumatic carditis. Dr. West gives statistics of forty-five cases of chorea complicated with heart disease: in twenty-five of these acute rheumatism was present; in the remaining twenty-one there was no evidence of rheumatism. So that the proportion of heart cases associated with chorea in which there was certain rheumatic history in the patient was 55 per cent., or not very different from 62 per cent. noted by Dr. West in non-choreic heart disease generally. He makes, moreover, the following highly significant remarks: "I have not included in this statement cases where there was merely a rheumatic diathesis in the family, since it may in several instances not have been noted, and I further suspect that my numbers understate the frequency of the rheumatic complication, since I find that my later observations yield a much higher average than the earlier." And again, speaking of eleven cases of *morbis cordis* not traceable to any assignable cause, he says: "Knowing, however, how slight an attack of rheumatism is often accompanied by heart affection, I hesitate much more than I should once have done to pronounce them idiopathic." A shrewd and prescient judgment, which has been fully justified by the result of the present researches. Dr. Mackenzie's valuable statistics, which strongly support the view that the heart affection of chorea is usually organic and rheumatic, are given in a form which does not admit of easy comparison with these tables. Taking now the successive cases of heart disease associated with chorea into which I have made special investigation,

I find they number forty-three, in which unquestionable organic affection existed. In twenty-seven of these, or 62·7 per cent., the patient had acute rheumatic joint affection, and in eight of these twenty-seven there was a history of acute rheumatism in close blood relations also. In addition to these cases, in which acute rheumatism occurred in the patient alone, or in the patient and near blood-relations together, there are ten more in which there was a certain history of acute articular rheumatism in the family. So that out of forty-three cases of organic heart disease, associated with chorea there was a rheumatic taint in thirty-seven—i.e., in all but six, or in 85·9 per cent. In order to check the effect of any unconscious bias I might have in working out statistical evidence with regard to the conclusions foreshadowed so strikingly by general clinical observation, I asked my friend, Dr. Chaffey, the hospital registrar, to conduct some similar observations independently. His results correspond closely with my own. Out of forty-six consecutive cases of heart disease associated with chorea, the patient had well marked rheumatic arthritis in twenty-four, or 52·1 per cent. In nine of these twenty-four, either father or mother or both had rheumatic fever; and in nine more, in addition to the twenty-four, there was a history of acute rheumatism in near blood relations (in nearly every instance in father or mother); so that out of forty-six cases of choreic heart disease there was rheumatic taint in thirty-three—i.e., in all but thirteen—in 71·7 per cent. Adding Dr. Chaffey's cases and mine together, we have eighty-nine. In fifty-one acute articular rheumatism occurred in the patient, in seventeen of these in father and mother also; in nineteen more there was a clear family history in near blood relations—i.e., a rheumatic taint existed in seventy out of eighty-nine, or 78·6 per cent. In nineteen cases only was no rheumatic disposition traceable. Look, again, how the heart disease picks out the rheumatic cases of chorea. Taking eighty-four cases of chorea of which I have precise notes, in sixty-two there was rheumatism in the patient or near blood relations, and in the remaining twenty-two no history of rheumatic taint. In the sixty-two rheumatic choreas there was organic heart disease in forty-three, or 69·3 per cent. In the twenty-two cases of chorea in which no rheumatism was traced, there were six cases of organic heart disease, or only 27·2 per cent. My colleague, Dr. Sturges, who has given an interesting description and analysis of the phenomena of chorea, doubts the influence of the rheumatic factor in the production of choreic heart disease; yet in face of the facts I have given, it seems to me impossible to maintain that the heart affection of chorea is constantly due to mere muscular disturbance, or that "endocarditis belongs to chorea altogether apart from the rheumatic origin of the latter," or that it is "quite

a rare experience to find secondary heart changes, hypertrophy and dilatation, traceable to valve disease having its origin in past chorea." I am convinced that an error has arisen from the use of faulty data—of cases imperfectly investigated for the purpose. Dr. Sturges, for example, found a history of rheumatism in six only of fifty-seven cases of chorea with heart disturbance, a result so opposed to the observations of Dr. West, Dr. Mackenzie, and others who have made special inquiry into this point, that it can only be explained, I think, in this way. (Dr. W. B. Cheadle, *Lancet*, Oct. 31, p. 794.)

[Dr. Cheadle's remarks on the Treatment of Heart Disease in Children will be found at p. 198.]

CUCAINE.—*Subcutaneous Injections for Production of Local Anæsthesia.*—Dr. A. Landerer, of Leipzig, has recently made trial of subcutaneous injections of cucaine for producing local anæsthesia, and reports that the agent thus administered acts far better than anæsthetic ether, morphine, or any other means hitherto used with this object. The mode of administration is very simple. By means of an ordinary morphine syringe about fifteen minims of a 4 per cent. solution are injected under the skin. Anæsthesia is usually established at the end of five minutes. If the patient after this interval still feel when the surface is scratched with a knife, the author waits one or two minutes longer. The anæsthetic region is of about the size of a crownpiece. A dissection, it is stated, may in this region be carried down below the fascia, and into the superficial layer of muscle, without causing any pain. The influence of the cucaine is maintained for about half-an-hour. If it be necessary to prolong the anæsthesia, a few drops of the solution may be applied to the wound, and allowed to remain until it is absorbed. The subsequent healing of the wound is not in any way affected by the injection. No unpleasant general after-effects have ever been observed by Dr. Landerer, nor any local mischief, such as supuration. Injection of cucaine has been applied in cases of simple incision, of needle-extraction, and of removal of small tumours. It has been applied also in a case of hydrocele. Fifteen minims of a 4 per cent. solution were first injected into the sac, and five minutes later, through the same canula, about a drachm and a half of a solution of iodine. The latter injection did not cause any pain. About six hours after the operation the patient complained of slight and very transient uneasiness. Cucaine injection as a means of producing local anæsthesia is far preferable, Dr. Landerer asserts, to the ether spray. The cucaine solution, when introduced through a fine and sharp needle, does not cause so much pain as the ether does, whilst freezing the skin. The anæsthetic influence of the ether-spray does not extend below the skin. After injection of cucaine, on the other hand,

the parts immediately below the skin are quite free from pain and sensation. (Medical Record, Dec., p. 515.)

DIPHTHERITIC PARALYSIS.—*Tendon Reflexes in.*—The loss of the knee-jerk in diphtheritic paralysis, first pointed out by Erb in Germany and Buzzard in this country, is an important addition to our means of distinguishing this disease. Its value has been augmented by the discovery of Bernhardt that this loss may precede other symptoms of paralysis, and may even occur without any other indications of impaired innervation. This fact shows that the influence of the diphtheritic poison on the nervous system is more frequent than obtrusive paralysis would lead us to suppose. The symptom throws also corroborative light on the pathology of the disease, confirming the conclusions suggested by the electrical reactions and pathological anatomy. The cases in which this symptom is of the greatest diagnostic value are those in which the other symptoms are slight, or in which the nature of the initial sore-throat was misunderstood. I have, however, known it to occasion an error in diagnosis. In a case in which there was that defect of co-ordination which sometimes occurs in diphtheritic paralysis, the loss of the knee-jerk led to a diagnosis of tabes. Fuller knowledge would, of course, have prevented the error. (Dr. W. R. Gowers, Lancet, Nov. 7, p. 840.)

[Dr. Gowers's remarks upon the Tendon Reflexes in Locomotor Ataxy will be found at p. 134.]

FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM.—*Use of the term.*—Following upon his remarks upon hysterical paraplegia, which will be found at p. 136, Dr. Gowers spoke as follows in the discussion at the Medical Society on Nov. 2, 1885:—These considerations suggest a pathological proposition that is, I think, important in regard to diagnosis. It is that we are not wise in our wide use of the term "functional disease." We apply it to all cases in which we should not expect to find changes visible with the microscope, and in which recovery is possible. But in a very large number of these cases there must be more than a mere derangement of function; there must be a change, and a considerable change, in the nutrition of the nerve elements—sometimes, it may be, springing out of a mere functional derangement, but always maintaining and increasing that derangement. The change in nutrition that the microscope can detect, even as the most trifling alteration of aspect or behaviour to reagents, is simply colossal, considered as an alteration in molecular nutrition. Many so-called functional diseases—most of them, indeed—are far better thought of and spoken of as nutritional diseases. Take chorea, for instance. Here is a disease which, however it arises, may be attended with optic neuritis, as I have six times seen, and is frequently attended with a change in the electrical excita-

bility of the motor nerves, such as can only be explained by an alteration of nutrition. And yet we call it a functional disease, because we find no visible alteration in the nerve elements. In cases of hysterical paraplegia in which we find a persistent change in the myotatic irritability, however slight, there must be more than a mere disturbance of function, there must be a change in the nutrition of the spinal cord, on which so persistent an objective symptom depends. In this connexion it may be well to remember that there is one case recorded (by Charcot) which seems to prove, as clearly as a single case can prove, that a paraplegia, at first purely hysterical and perhaps purely functional, may pass into a structural disease—lateral sclerosis. The transition must have been by alterations of the nutrition of the nerve elements, such as, in a slight degree, I believe to be common in these cases, and revealed by the change in the myotatic irritability. We must remember that, while function depends upon nutrition, nutrition equally depends on function. No functional condition of nerve-cell can exist for a moment without entailing a change in nutrition. This is certain; it is certain also that such a change in nutrition must have its own effect on function. The only question is the degree to which such changes in nutrition may go. The view that even structural disease, visible alteration, may have its ultimate origin in a pure disturbance of function, was put forward some years ago by Dr. Donkin, in a very able and thoughtful paper in *Brain*. (Dr. W. R. Gowers, *Lancet*, Nov. 7, p. 841.)

HYPER-TONIC PARESIS.—In my own limited experience it is of frequent occurrence; and I find in my note books of the last two or three years the detailed account of twenty-four typical examples. An individual, either male or female, in otherwise good health, without obvious cause, gradually experiences slight weakness in a limb—say, the leg. This, as a rule, very insidiously increases, and, after a year or more, extends to the arm of the same side, sometimes to the opposite leg, and subsequently to all the extremities. On examination motor weakness is detected without incoördination; there are clumsy and feeble actions of the upper, and a weak, shuffling, stiff, gait with the lower, extremities. At an early stage there is great exaggeration of the tendon phenomena, the cutaneous reflexes remaining normal. Afterwards ankle-clonus is developed, and later slight stiffness of the muscles and trepidation of the limbs. The general health remains robust, and all the organs and functions of the body are normal. Sensibility and nutrition continue unimpaired. Occasionally, but very rarely in my experience, this abnormal condition is acute, and reaches its full development with great rapidity. The affection may entirely recover, but as often it persists for many years without change, or slowly increases in

severity. The disorder is one evidently limited to the motor apparatus. It imperfectly answers to the description of the "primary lateral sclerosis" of Erb and Charcot, but differs from that disease inasmuch as it is of common occurrence, it frequently recovers, and also because spasm of muscle with its consequences is not the leading feature of the affection. It is a condition which, when occurring in women, is almost invariably pronounced to be hysterical; when in men, it is vaguely called paraplegia or myelitis. For convenience I describe the group of symptoms under the term "hyper-tonic paresis," a symptomatic nomenclature which commits to no theory. (Dr. Hughes Bennett, *Lancet*, March 13, p. 486.)

KNEE-JERK.—*Contrivance for Obtaining it more readily than by most other means.*—This consists simply in "stirruping" the foot in the left hand, and adjusting the leg at the most convenient angle of flexion at the knee. The centre of the instep should be allowed to rest comfortably on the palmar aspect of the fingers and front part of the palm. (Dr. Angel Money, p. 142.)

[Dr. Money's very interesting paper on Tendon-Reflexes in Pyrexial States, of which the above is the concluding sentence, will be found at p. 138.]

LEAD POISONING.—*Treatment.*—In the matter of treatment, means of prevention must occupy the first place, and, of these, cleanliness is the most important. Baths; frequent ablution; avoiding eating with unwashed hands, in the factory particularly; wearing of respirators in the dusty atmosphere of the workshop; the habitual use of lemonade, made with sulphuric acid; the occasional use of sulphate of magnesia, acidulated with sulphuric acid, have been recommended, and are very beneficial. The difficulty, however, is to get the workpeople, unless compelled, to make use of them. In some of the large lead-factories on Tyneside, baths and all other sanitary requisites have been provided for the workers; but only I am told for the employers to find that their workpeople will scarcely, if at all, make use of them. When lead-colic has been established, and is severe, the employment of opium is called for, and the use of fomentations. Should the bowels not be relieved in a day or two, sulphate of magnesia becomes necessary. When there is paralysis or headache, iodide of potassium, with magnesia-sulphate, is of all others the remedy. The slowly-interrupted current has, in my hands, combined with iodide of potassium, proved very efficacious in the treatment of lead-paralysis. Nearly all have recovered, some entirely, others slowly and somewhat imperfectly; of these latter, most have had albuminuria. (Dr. T. Oliver, pp. 162, 167.)

MEGRIM.—*Use of Salicylate of Soda in Certain Cases.*—The action of drugs in megrim and gout is remarkably similar. Trousseau

and others have used colchicum with benefit in megrim, and other observers have remarked on the similar curative effects that certain purgatives, as calomel, have in both gout and megrim; and, again, others have used iodide of potassium with considerable success; but the great value of salicylate of sodium in some of these headaches is more remarkable still; it seems to me to be most certainly curative and not merely palliative, as it removes the concomitant gastro-intestinal troubles along with the headache. Thus a dose of bromide of potassium and sp. ammon. aromat. will sometimes remove a slight headache, but the other conditions remain and the headache will probably return; but with salicylate treatment it is quite a different matter; the headache is gone once and for all, and shows no sign of return for a considerable period; its action in this respect is very similar to that of calomel, and, like calomel, it seems to free the secretions of the mouth, and, at the same time, slightly relaxes the bowels. The dose of salicylate that I have used has been the small one of two to three grains repeated every quarter or half-hour for three or four doses or more, as recommended by Dr. Brunton; and begun when the headache first comes on, this is sufficient. A patient might carry 3i of the powder in his pocket, and take a little when a headache threatens, and he would soon learn to judge the proper dose by sight. (Dr. A. Haig, p. 181.)

NEURALGIA.—*Chloride of Methyl Spray.*—Vinay (Lyon Medical, July 12, 1885) writes eulogistically of the value of methyl chloride spray in neuralgia. The method of treatment, which was introduced by Debove, consists in throwing on to the skin of the affected part a spray of chloride of methyl, which in a few seconds causes freezing. The pain is equal to or greater than that of the actual cautery, but soon passes off, leaving some superficial redness, which however subsides in a few days. Of 25 cases thus treated, 21 are said to have been cured after one or more applications, and the rest improved. In lumbago especially were the beneficial effects noticed. This method also cured cases which had resisted all ordinary therapeutic measures, including counter-irritants in various forms. (Dr. William Thorburn, in Medical Chronicle, Oct., p. 48.)

[We have tried Debove's spray in cases of sciatica and allied affections, and while in some cases much benefit has followed its use, our experience in no way confirms the almost constant good results claimed for it. The apparatus, moreover, is very expensive at present.—ED.]

PARAPLEGIA OF POTTS' DISEASE.—*Successful Operations for.*—At the Glasgow Pathological and Clinical Society, on Dec. 22nd. Dr. Macewen showed two cases in which the Excision of the Laminæ of portions of the Spinal Vertebrae had been performed

in order to relieve pressure on the spinal cord causing paraplegia. The first case was one in which the operation had been performed for paraplegia following very acute angular spinal curvature in dorsal region, and in which the parts had become firmly anchylosed. There was complete motor and sensory paralysis, with spastic contraction and absence of reflex actions. The case looked hopeless, and only from urgent pressure was the operation performed. Dr. Macewen described the operation, which resulted in the restoration of the functions of the part. The patient was shown to the Society. She could move her lower limbs freely, and she had walked a quarter of a mile that night to the place of meeting. She had complete continence of urine and fæces from the fourth day after operation. The second case was one of fracture of the spine by direct violence, resulting in complete motor paralysis with incontinence of urine and fæces. The fracture was in lower dorsal region. (There was likewise a compound fracture of tibia.) Over the lower dorsal region there was great tumescence from extravasation of blood, which obscured the exact condition of the laminæ and spinous processes. Three weeks after the injury the muscles had undergone rapid atrophy, with strong and increasing contractions, and there was no electric contractility. Toward the end of the fifth week, pressure points began to appear at various parts of the lower limbs, the urine became thick and ammoniacal. The operation of elevating the laminæ was described. Two of the laminæ were found fractured and driven in on the spinal canal. [The man was shown at meeting, nine months after operation, able to walk and move his feet and limbs freely. No incontinence of urine or fæces.] (Glasgow Med. Journal, March, p. 210.)

PERIPHERAL NEURITIS.—It is common at the present time to distinguish two forms of neuritis: interstitial neuritis, in which the connective tissue of the nerve is the primary seat of inflammatory changes, the essential element being secondarily affected; and parenchymatous neuritis, in which there is destruction of the essential element of the nerve fibres, with but little or even perhaps no recognisable alteration in the interstitial tissue. It is open to discussion how far we are justified in applying a term which suggests inflammation to the latter of these two processes. The change which takes place in the nerve fibre is of the character of degenerative atrophy, and is comparable with that which occurs below the point of section when a motor nerve is artificially divided. These two forms of lesion, interstitial and parenchymatous neuritis, call to mind the changes which are observed to take place in the nerve fibres constituting the posterior columns of the spinal cord in cases of so-called sclerosis. In some of these it is manifest that the investing tissue of the fibre has been primarily affected, the essential nerve elements

suffering secondarily; whilst in others, as is commonly though not universally accepted, the nervous elements are the first to undergo change, which spreads to the interstitial tissue. Whether in the latter case there is justification for the employment of a term implying inflammatory action is not quite certain. The question both as regards the changes in the nerve fibres which run in the spinal cord, and in those which take their course in a nerve trunk, must be acknowledged to be still in an unsettled state. In applying, therefore, the term "neuritis" to changes in the essential nerve elements of a fibre when these are to all appearance primarily as well as when they are secondarily produced, it will be understood that I suspend my judgment as to the propriety of the parenchymatous form being considered as certainly of inflammatory character, and make use of the expression as a convenient one, which has the advantage of being generally recognised. (Dr. T. Buzzard, Nov. 28, Dec. 12 and 19, pp. 983, 1081, 1127.)

[Abstracts of Dr. Buzzard's Harveian Lectures will be found at pages 142, 145, 149, 154, 157, and 159 of this volume of the *Retrospect*. See also succeeding articles in this *Synopsis*.]

Peripheral Neuritis.—Its Origin in Gout.—Dr. Buzzard, after narrating a series of cases of peripheral neuritis, says, in speaking of their causation: "In almost every instance they occurred in persons with known gouty antecedents. When we remember the tendency that gout has to cause local inflammation, it seems reasonable to suppose that local irritation from the presence of urate of soda might cause inflammatory action in the trunks of the nerves. One can readily understand, indeed, that when urate of soda is present in the blood it may be liable to find its way into the lymph spaces which are in immediate connection with the bundles of nerve fibres, and there set up inflammation. The difficulty is to say why this does not always happen, not to explain its occasional occurrence. Nor is it easy to give a reason for its limitation in such circumstances to one small part of the frame." (Dr. Buzzard, *Ibid*.)

Peripheral Neuritis.—Diversity of Manifestations.—In cases of paralysis in which the lesion certainly occupies the peripheral nerves, we may find a singular diversity of symptoms. As you will have remarked, pain is sometimes present and sometimes absent, numbness may be slightly or strongly pronounced, muscular atrophy, which is sometimes conspicuous, may be entirely wanting, whilst the results of electrical examination may vary to a remarkable extent. We shall find that the same variety is apt to mark cases in which not one nerve trunk or plexus alone is the seat of lesion, but when there is a more or less universal affection of the peripheral nerves. The name of progressive

multiple neuritis has been given by Leyden to this disease, which, although long since observed, has only been clearly differentiated and referred to its pathological source during the last few years. There is now ample evidence that a more or less widely spread paralysis may depend upon a degeneration of the nerve fibres themselves, most pronounced towards the periphery, and independent of any recognisable change in the nerve centres or roots. Such cases may occur in connexion with chronic alcoholism, diphtheria, enteric fever, syphilis, tuberculosis, and apparently the wide-spread disease of Japan, called Kakké or Béri-béri, is an endemic form of the same affection. There is some reason, too, to think that exposure to cold, which is a frequent antecedent, may be a factor in the production of the disease. Occasionally also cases occur in which no etiological cause whatever can be traced. In this class of neuritis we have not to deal with gross changes in the nerve trunk. The alterations are in great measure confined to the nerve fibre itself, and are usually only recognisable under the microscope. (Dr. Buzzard, *Ibid.*)

Peripheral Neuritis.—Alcoholic Paralysis.—There is now enough of evidence from histological examination to show that, in alcoholic paralysis of the kind which I have described, the essential lesion consists in parenchymatous neuritis of the peripheral nerves. It is evident that, as a result of chronic alcoholism, more or less extensive lesions may be expected to be found in various parts of the body, especially in the liver and intra-cranial membranes. But there can be little doubt that the degenerative changes in the peripheral nerves are the immediate cause of the paralytic symptoms. In these cases, as has been shown by Lancereaux and others, the spinal cord and the roots of the spinal nerves are found normal. It is in the periphery of the nerve fibres that the changes are discovered. They are cases, indeed, which come into the category of multiple neuritis. (Dr. Buzzard, *Ibid.*)

Peripheral Neuritis.—Its Diagnosis.—The differential diagnosis between multiple neuritis and acute anterior poliomyelitis may be very easy indeed, or so difficult as to give rise to considerable doubt. It appears to me that there are three principal points to be borne in mind: (1) In acute anterior poliomyelitis, what may be called the first stage—the stage of increasing intensity of symptoms—is usually much shorter than in progressive multiple neuritis, the paralytic symptoms far more complete, and the motor disturbance much more marked than the sensory symptoms, where these chance to be present. In multiple neuritis, on the contrary, such forms of the latter as “numbness,” “deadness,” and “pins and needles” are usually more prominent at first than the loss of power. (2) In acute anterior poliomyelitis groups of muscles functionally related are apt to be struck simultaneously

with complete loss of power, whilst in progressive multiple neuritis the groups of muscles invaded by the disease are apt to be those in the district of distribution of various nerve trunks rather than of plexuses. (3) In progressive multiple neuritis, severe enough to cause marked paralysis, you may expect to find distinct tenderness if you press upon the trunks of nerves where these are superficial. Sharp shooting pains in the course of peripheral nerves lasting several days probably furnish in an otherwise doubtful case conclusive evidence in favour of progressive multiple neuritis. This is the best diagnostic scheme which I can suggest, but I acknowledge that in certain cases it will not be sufficient for the required distinction. For it may chance, in a case of multiple neuritis, that the motor disturbance is exceptionally rapid, severe, and unaccompanied by sensory disturbance. It may be so extensive as to merge in one common powerlessness all the muscles of a limb, whether functionally or anatomically related. As regards the tenderness on pressing the nerve trunks, I am not able to say whether this is constant in cases marked by motor symptoms chiefly or entirely, as well as in those characterised by striking pain and hyperalgesia. It is in the latter only that I have noted the symptom. (Dr. Buzzard, *Ibid.*)

Peripheral Neuritis.—Prognosis.—A very few words are necessary in reference to prognosis. In the early stage of multiple neuritis of non-alcoholic form, when the disease is spreading almost hourly so as to invade fresh nerve districts, the prognosis is necessarily an anxious one. The cardiac and respiratory apparatus may easily become involved, and death occur almost suddenly. But it is quite remarkable, as was seen in the two cases of my own which I have related, to what an extent the respiratory apparatus may become affected and recovery yet take place. When the disease seems to be no longer making fresh inroads, but, on the contrary, slight ameliorations begin to appear, a highly favourable result may generally be looked for. It is not so easy to speak as regards the alcoholic cases, as in them the brain also is always more or less involved in the disorder. But, as I have already remarked, my personal experience has decidedly disposed me to give a very favourable prognosis even in cases which are marked by extensive paralysis and muscular atrophy. In diphtheritic paralysis the prognosis is distinctly favourable. It is probably through invasion of the pneumogastric that a fatal result now and then occurs, and for that reason serious modifications of the circulation, especially if accompanied by vomiting, should cause anxiety and care. So long as the knee-reflex is absent, the patient should be looked upon as still an invalid, and not allowed to be incautious. This will obtain equally in other forms of multiple neuritis. There are various degrees of severity shown by this disease, from a slight

loss of power scarcely noticed by the patient, to a rapidly extending and complete paralysis, involving not only the nerves of the extremities and trunk, but also those belonging to the organs whose functions are essential to life. (Dr. Buzzard, *Ibid.*)

RAYNAUD'S DISEASE.—Dr. Bernstein, of Odessa, relates an instance of a rare neurotic form described by Dr. Maurice Raynaud, under the name of *gangrène symétrique*. The case was that of a merchant, aged 45, who, after an operation (cauterisation of prolapsed rectum) in 1862, had begun to suffer from true epileptic fits, which had occurred at irregular intervals—varying from two months to two and even ten years. In August of 1883, after a mental shock (caused by the sudden death of his wife), the patient had become subject to peculiar paroxysms not unlike those of intermittent fever; every evening, or about 7 p.m., there appeared severe rigors, extreme prostration, præcordial anxiety, oppression within the chest, extreme feebleness of the pulse (without increase in its frequency), and profuse perspiration. Quinine had proved a failure, but the paroxysms had gradually yielded to tincture of valerian with belladonna extract. For the three last months of 1883, the patient had occasionally complained of feeling cold all over the body, and of night-sweats, to which symptoms, in January 1884, pain and tenderness of both of the ears had been added. On Jan. 14, the author's attention was drawn to extreme paleness of the auricles, which four days later turned dark blue ("so as to lead the patient's friends and himself to the idea that he had somehow smeared his ears with ink"), and were found cold and very tender to touch. In a few days, the skin covering the helices became black and transformed into hard, dry sloughs, sharply limited from the remaining part of the ears, which commenced to grow paler. Gangrene of the ears was soon followed by similar but slighter symmetrical phenomena on the fingers and toes, which from time to time suddenly became cold, stiff, and deadly pale or livid, to resume their normal appearance in periods varying from a few minutes to an hour. Simultaneously, periodical nightly attacks of general coldness with prostration and perspiration reappeared. Under the influence of the administration of large doses of bromide of potassium, arsenic, and quinine, and the use of electricity (galvanisation with the anode to the cervical sympathetic nerve and the cathode to the belly), a considerable improvement followed; acute attacks of local asphyxia in the extremities and of general coldness ceased to occur. The case is still under observation. After discussing the nature of Raynaud's disease and duly scrutinising the details of his case, Dr. Bernstein arrives at the conclusion that his patient "suffers from morbid excitability of the vaso-motor centres, which at one time manifests

itself in local syncope and asphyxia of peripheral parts of the body, another time produces local anæmia in those parts of the brain which determine the occurrence of epileptic fits; and at other times again gives rise to intermittent-like paroxysms."

[See also a case of Raynaud's Disease following Diphtheria, reported by Dr. Allman Powell, at p. 213 of this volume.]

SCIATICA.—*Treatment by Chloride of Methyl Spray.*—Dr. Debove presents a novel treatment for sciatica, which he claims to be very effectual in producing a rapid and permanent cure. He freezes the skin with chloride of methyl, applied by a specially constructed apparatus to the entire area of pain, from the sacrum to the malleolus. The skin freezes instantly, grows white and hard like a stone, the patient experiencing a sensation similar to that produced by the application of the actual cautery. An erythema usually appears on the frozen parts. The result is claimed to be equally excellent in old as in recent cases of rheumatic sciatica, the patient being able to walk at once after the application of the cold. Debove thinks that this treatment may also be applicable in other forms of neuralgia, in which pain is a prominent symptom. (Edinburgh Med. Journal, Sept. p. 283.)

[Dr. Debove's apparatus is to be obtained through any instrument maker. We have seen one case in which the results were most gratifying.—ED.]

TENDON REFLEXES.—In the discussion following Dr. Gowers's address on this subject at the Medical Society (see p. 134, 136), Dr. Hughlings Jackson said he agreed with Dr. Gowers in thinking that there were cases of tabes dorsalis in which the knee-jerks were present. It was quite certain that a man might be perfectly paraplegic for many months—twelve, for example—with extreme rigidity of the legs, and yet recover, at any rate with the qualification Dr. Gowers had made; this remark did not apply to so-called protopathic spastic paraplegia. Dr. Hughlings Jackson had suggested that the increased knee-jerk and foot-clonus, in cases of hemiplegia from destructive cerebral lesion, were owing to loss of cerebral control. Passing over some cases in which these super-positive phenomena were present for a while at the onset, the objection which had naturally been urged to his hypothesis was, that the super-positive symptoms mentioned came on late—"waited" for the establishment of lateral sclerosis. The current doctrine was that the "descending" process which destroyed the fibres, next, coming to the anterior horns, produced in their cells the diametrically opposite functional state of exaltation. Dr. Hughlings Jackson did not believe that the increased excitability of the anterior horns, or, to use Dr. Gowers' expression, muscle-centres, was owing to pathological change, but that it was the result of permitted

hyper-physiological activity. By borrowing Dr. Gowers' hypothesis of local spinal inhibitory centres, he thought his view of "loss of control" was still tenable. Following Dr. Gowers, and thereby acknowledging great indebtedness for any value his modified hypothesis might have, he would say that the "descending" pathological process destroyed the local inhibitory centres, leaving the "muscle centres" intact, but yet, from loss of control, in increased functional activity. The current hypothesis would not account for increased knee-jerk and foot-clonus in some cases of post-epileptiform paralysis. Dr. Hughlings Jackson mentioned some facts from a case he had recorded; a convulsion, beginning in the left foot, affecting the left leg chiefly, and followed by temporary paralysis, chiefly of the leg, with exaggerated knee-jerk and foot-clonus. In this case, following Todd and Robertson, he believed that the paralysis was owing to exhaustions among other parts of fibres of the lateral column. Westphal and Dr. Gowers had both pointed out that, after some epileptic fits, there was very transitory loss of the knee-jerk. In these cases the presumption was that the exhaustion was greater in range, involving not only the local inhibitory centres, but the muscle centres also. Dr. Gowers suggested that, in his case of loss of the knee-jerk after an epileptic fit, the lumbar nuclei were exhausted. Dr. Hughlings Jackson referred in this connexion to some valuable researches by Dr. Beever, who had, in many cases, found ankle clonus and increased knee-jerk after epileptic fits. The cortical discharges both in epileptiform and epileptic fits varied greatly in degree, as the varying degrees of the paroxysms produced by them showed; the after exhaustion would vary in range correspondingly. He thought the condition of the deep reflexes after epileptic fits a matter of very serious importance in the analysis of the wide symptomatology of epilepsy. Foot-clonus after epileptic fits was, he thought, an illustration of the principle of "loss of control" stated many years ago by the late Dr. Anstie. It was, he thought, a phenomenon of the same order as passage of fæces after a slight fit of epilepsy, and of the same order as post-epileptic mania. (Lancet, Nov. 7, p. 852.)

Tendon Reflexes.—Dr. Buzzard, in the same discussion, said:—It was noteworthy that Dr. Gowers was disposed to consider the absence of the knee phenomenon as being always a sign of pathological import. He (Dr. Buzzard) had long expressed a similar opinion. It must be allowed, however, that cases now and then occurred in which, owing to there being no concomitant symptoms, a doubt might exist as to whether the absence of the reflex was due to a pathological cause or to some imperfection in the examination. That there was a great danger of fallacy in this respect was shown by the fact that the relative frequency of what might be called a "natural" or a

physiological absence of knee-reflex had been represented by several different observers by figures varying so remarkably as from $\frac{1}{25}$ to nearly five per cent. Such a contrast of numbers carried with it proof of a very large amount of error of observation. It was satisfactory to find that a method had been recently introduced by Dr. Ernst Jendrassik, of Buda-Pesth, by which it was hoped the sources of fallacy might be largely diminished. His method, when the knee-reflex was either very small indeed, or quite failed to be elicited in the ordinary way, was to direct the patient, seated on a table with the bare legs dangling, to link the bent fingers of one hand in those of the other, and pull energetically, as though endeavouring to tear them asunder. Whilst this was being done, the ligamentum patellæ was struck. By this method 1,000 men of different ages and varying health (subjects of recognised nervous diseases being excluded) were tested, with the result that in only one instance the knee-reflex failed to be evoked, and that was in a case of diabetes mellitus, a disease in which, as was known, the phenomenon was often absent. He (Dr. Buzzard) had tried this method in several cases, in some of which the knee-reflex was small, and he thought he had convinced himself that the amount of action was considerably increased by its employment. If further observation should confirm the experience of Dr. Jendrassik, it would be impossible to doubt that every case in which the knee-reflex was absent had at least some pathological bearing. Five years ago, in a paper on Tendon-reflex, published in the *Lancet*, he (Dr. Buzzard) drew attention to a method of examination, which was convenient, and the efficacy of which probably depended upon the same principle as was concerned in Dr. Jendrassik's method—*i.e.*, a state of artificially increased muscular tension. The patient (seated) was directed to plant his foot *firmly* down at such a distance that the leg formed a little more than a right angle with the thigh. Whilst the observer rested the palm of his left hand upon the patient's thigh, he struck the ligamentum patellæ about one-eighth of an inch below the knee-cap. The quadriceps muscle could be felt, and, if the skin were exposed, could be seen to contract more or less vigorously in response. He (Dr. Buzzard) constantly employed this method in the first instance in the case of females, as no disturbance of the dress was required, the contraction of the muscle where the response was normal being plainly to be felt through it. But this method, like all others that he had seen, was not absolutely infallible, but required checking by others. In the great majority of cases, blows with a percussion hammer were by far the best means of evoking the reflex; in a small minority, however, this process would entirely fail, and the ulnar edge of the hand would be successful. He remembered an instance in which, both these means having

failed to produce a response, a dexterous blow with the family Bible excited a vigorous contraction. (Lancet, Nov. 7, p. 853.)

THOMSEN'S DISEASE.—A carefully recorded and scientifically investigated case of Thomsen's disease is reported in the current number of the Archives de Neurologie, by MM. Pitres and Dallidet. The patient was a man aged 25, born in Bordeaux. He had been attacked with muscular spasm on performing volitional acts ever since his infancy. The authors have no doubt as to the nature of the disease. In the family history there was some obscure evidence of the mother having been afflicted with spasm during volitional acts, but much reliance could not be placed on this statement. A brother, the fourth member of the same family, was afflicted with the same disease as the fifth member of the family, the patient in question. The affection began in the first years of life, and made slow but steady progress without noteworthy exacerbations. When first examined, the most notable feature was the enormous size of the muscles. The arms and forearms were very greatly developed, and contrasted with the slender wrist. The thenar and hypothenar eminences were very prominent. Speaking generally, the limbs were massive, whilst the skeleton was slender. Lordosis was a marked feature. Although muscular power was fairly retained, yet it was decidedly out of proportion to the size of the muscles. Careful measurements of the size and power of the various groups of muscles are tabulated in the paper. The electrical reactions appeared to be everywhere normal. The chief functional trouble is well described by the authors. When the patient made an attempt to flex the forearm great stiffness and consequent difficulty were experienced; but if the attempts were persevered in, the difficulty and stiffness gradually diminished, so that finally the flexion could be performed as precisely and as rapidly as in healthy subjects. The same description would apply to successful attempts to ascend a ladder. Flexion of the fingers into the palm was perfectly performed, but there was great difficulty in extending them afterwards. Myographic tracings of the mode of contraction of the muscles under volitional and electrical stimulation are represented in the paper. (Editor of Lancet, Oct. 3, p. 632.)

TRAUMATIC TETANUS.—*Use of Curare.*—The rules which should guide us in the use of curare are:—1. If a watery solution be used, it is necessary to dissolve a fresh supply every few days, as the active principle with some resinoid materials precipitates early. 2. In injecting, the needle should be passed horizontally under the skin, so that rapid action may be avoided; in my case whenever the needle was allowed to enter deep structures the effects of the drug became alarming. 3. The dose, to be of service, must

be large, and frequently repeated— $\frac{1}{2}$ to $\frac{3}{4}$ grain every fifth hour; some even go so far as to state that $\frac{1}{2}$ grain is the proper dose for an adult. 4. The solutions should be filtered, else very troublesome abscesses form at points of injection; such abscesses occurred in the early part of my case. Some few writers advocate the use of small doses; the history of their cases, however, shows the worthlessness of this opinion, since the ones which have not succumbed under treatment by small doses were exceptionally mild, and should not be classed amongst cases of acute traumatic tetanus. One great difficulty in connection with the treatment of tetanus by curare lies in the fact that no two specimens of this drug agree in strength, and hence experimental injections (into rabbits or dogs) should be made before using a fresh sample. (Mr. J. S. M'Ardle, p. 177.)

URETHAN, A NEW HYPNOTIC.—Dr. R. von Jaksch relates a series of trials with urethan, a drug to which the physiological investigations of v. Schmiedeberg seemed to promise some value as a hypnotic. The chemical composition of the remedy, carbamic ether, is NH_2 , CO_2 , C_2 , H_5 . It is in the form of white crystals, easily soluble in water, with a taste not unpleasant and recalling that of nitrate of potash, and it has no smell. A record is given of its employment in twenty cases. In all these cases it was given for the most part in doses of .25 to .5 grammes, sometimes repeated several times at intervals of two or three hours. It generally produced a sleep of several hours. When the dose given was 1 grm. it invariably gave a good night's sleep. It has these advantages: (1) It is well borne by the patients. (2) It produces no bad effects. (3) The sleep which it brings seems quite equal in value to normal physiological sleep. In the absence of bad effects it has an advantage over chloral and the bromides; in its absence of unpleasant taste and smell over paraldehyde, which it excels greatly as a hypnotic. It seems to act directly on the cerebrum, and has no calmative effect on cough, etc., otherwise than as it gives sleep. Its price, as sold by Merck, is at present twenty-five kreutzers per gramme, but if a demand arose, it would fall considerably. The author requests others to continue his observations. (Dr. Niven's Abstract in Medical Chronicle, Oct. p. 47.)

Urethan.—Since October, I have been using urethan in a variety of cases with satisfactory results. I have used it in over fifty cases as a sedative and hypnotic, and my experience of its action encourages me to recommend the drug, believing that, in certain cases, it will prove of great value. The cases in which I have prescribed it were of the usual run of every day practice, where a sedative or hypnotic was required; general restlessness, sleeplessness, neuralgia, catarrh, certain forms of skin affections with

great irritation, also rheumatism and gout. Many of my patients had some peculiarity of constitution which prevented the use of opiates of the usual type; and it is in this special class that I think urethan will prove of great value. One gentleman, who had suffered from insomnia for weeks, and who cannot tolerate opium or chloral, took 15 grains at bedtime with the most perfect result. He wrote to me and said, "The sleep caused was most pleasant and refreshing. I awoke without a headache, with appetite for breakfast, and, what was equally agreeable, there was no interruption to any of my functions." Similar testimony has been given by the majority of patients, who have taken full doses to produce sleep. In smaller doses, its action is less marked, still it is decidedly calmative and agreeable, causing no unpleasant effect, such as nausea, flatulence, constipation, or headache. It does not affect the nerve-centres of circulation or respiration, but spends itself on the cerebrum. It possesses, therefore, great advantages over the older and valuable sedatives, which have certain evil influences, especially in exceptional cases. Given in gout and rheumatism in full doses, alone or in combination, it has the great advantage over morphia of not interfering with the action of the bowels or kidneys; besides, it is not unpleasant to the taste; the only objection to it is its price, although that has been reduced 50 per cent. since I gave my first dose three months ago. (Dr. A. S. Myrtle, Harrogate, British Med. Journal, Feb. 20, p. 343.)

Urethan in Cardiac Disease.—I have felt, in common with most practitioners, the want of a hypnotic which may be given safely in the insomnia of cardiac disease, or of acute maladies like pneumonia, where the tendency to heart failure is a pressing danger. The numerous instances of death after chloral have sufficiently indicated its danger. I hoped paraldehyde might have proved of use, but in my hands it was a failure. Within the last week I have treated two cases of cardiac insomnia successfully by two-grain doses of urethan, given at bed-time in solution in water. One of these was a case of aortic and mitral incompetence, with congestion of the lungs, hæmoptysis, pleural effusion, and oedema of the legs. The patient complained that as soon as he fell asleep he woke with a dreadful feeling of suffocation, and for three nights he had had very little rest: but the last five nights he had slept comfortably by the aid of urethan, and his condition has generally improved in consequence. The other case is one of cardiac dilatation, with mitral incompetence; the heart's action is very feeble and irregular. The patient had not slept for several nights, but urethan has obtained for her comfortable sleep ever since she began to take it, four days ago. (Dr. Saundby, Practitioner, Feb., p. 130.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ASTHMA OF FATTY HEART.—Under the name of “lipocardiac asthma,” Professor Cantani gives an account of the affection described by him since 1864 as “fatty heart asthma.” The patient is perhaps quiet in bed or in an armchair, when suddenly, without any apparent reason, the rhythm of his respiratory movements is disturbed. Little by little, sometimes almost insensibly, his respiration become more frequent, shorter, and more profound, amounting at times to a laborious and even stertorous dyspnoea. Gradually the respirations become less frequent and profound, returning by degrees to the normal. Such attacks are usually short in duration; severe attacks last only a few minutes, and mild attacks only about two or three minutes. At first the outbreaks are unfrequent—about once a month, or three or four in the course of a year; and then they follow fatigue, muscular efforts, or emotional disturbance. As time wears on, the attacks begin to recur at short intervals and without apparent cause. The origin of these symptoms, according to the author, lies not in mere fatty hypertrophy of the heart, but in fatty degeneration of the muscular tissue of the organ. The symptoms show themselves when the heart begins to be tired. With this muscle, however, fatigue means impossibility to continue its work with its usual power. It requires, therefore, a brief period of relative repose, of less energetic contraction. This, however, involves a less complete emptying of the ventricles. Now, during this period of relative repose, of fatigue of the heart, the quantity of blood driven into the lungs by the right ventricle and to the rest of the body from the left ventricle, is for the time diminished. Not merely, therefore, is there less blood oxygenated in the lungs, but the blood that is oxygenated is distributed more slowly throughout the body. This insufficient supply of blood to the tissues provokes a nervous erythism, or general hyperæsthesia. The recognition of lipocardiac asthma is important, inasmuch as the prognosis is much more unfavourable than in any other kind of cardiac asthma. It must be distinguished from angina pectoris, with which it is apt to be confounded, and with which, in fact, it is rarely conjoined. Another disorder of respiration with which it might be confounded is Cheyne-Stokes’ respiration. Cheyne-Stokes’ respiration, however, is a symptom in various morbid states. It has a different pathogenesis and a different significance. In it there is apnoea; in lipocardiac asthma, on the contrary, there is only dyspnoea. Cheyne-Stokes’ respiration occurs at brief intervals, and does not occur long before death; lipocardiac asthma occurs at distant intervals, and may occur for many years before death. The treatment of lipocardiac asthma consists in improving the general health of the patient. Against the symptoms, digitalis, convallaria, valerianate of quinine,

caffein, cognac, red wine boiled with cannella, &c., may be useful. In fatty persons who are not too old, ferruginous preparations may be tried. (Dr. Huggard's Abstract in Medical Record, Aug., p. 322.)

DIGITALIS GROUP.—*Therapeutics.*—Dr. Fraser includes in this group, besides digitalis, such other substances as scillain, adonidin from *Adonis vernalis*; convallamarin from *Convallaria majalis*; anitiarin from *Antiaris toxifera*; helleborein from *Helleborus niger*; oleandrin from *Nerium oleander*; and erythrophloein from *Erythrophloeum Guineense*. The following remarks form the concluding portion of a paper on the actions and uses of digitalis and its substitutes, devoted mainly to the consideration of strophanthus. "I regard, in common with many others, the characterising action of the members of the group to be the action of the heart. They may be used with advantage in all weak states of this organ, whatever the cause of weakness, and their most satisfactory results are, I think, produced in mitral disease. They do little, if any, good when the cardiac muscle has undergone much degeneration; they sometimes fail, even while degeneration is absent, when lesions of the orifices throw too great a burden upon the heart; and they are injurious when sufficient compensatory changes have been produced. They are valuable as diuretics; and it appears, from the experiments I have described with strophanthus, that the diuretic action can be produced by substances which have only an insignificant action upon blood-vessels. They are antipyretics; but in regard to this action, I have no special experience to describe. In the case of strophanthus, I have occasionally seen pyrexia disappear, and very frequently the charts of my apyretic cases exhibit a subnormal temperature. The hæmostatic action, which seems clearly to be possessed by digitalis, finds a satisfactory explanation in the marked effects produced by it upon the blood-vessels. Experiments with strophanthus, however, show that it is not an action possessed by all the members of the group. As to the inconveniences and disadvantages which are associated with their application in disease, an experience, no doubt somewhat limited, would lead me to state that sickness and gastro-intestinal disturbance are not produced so frequently by strophanthus as by digitalis; while I have not yet obtained any distinct evidence of accumulation, with its consequent manifestations of intolerance, in the cases in which strophanthus has been administered, even for several weeks uninterruptedly. The therapeutical applications of digitalis are among the most valuable of those producible by substances used as remedies. The fundamental basis of these applications is to be found in an action possessed also by a considerable number of other substances. There is reason to hope that one or other of these substances may, in some respects, be

even more valuable than digitalis as a means for applying to the treatment of disease the characterising pharmacological action of the group." (Dr. T. R. Fraser, Brit. Med. Journal, Nov. 14, p. 909.)

Strophanthus in Cardiac Disease.—*Strophanthus* exerts a much more powerful action upon the heart, and a less powerful action upon the blood-vessels, than digitalis. What the exact significance to therapeutics of this difference may be, I am not prepared decidedly to say. On first consideration, however, the advantage seems to belong to *strophanthus*, in the treatment of cardiac disease at any rate. In difficulties and embarrassments of the circulation depending upon a central cause, it seems preferable to act upon the heart alone, rather than also to increase its difficulties by closing the blood-vessels into which it must empty itself. It may possibly be the case that some of the benefit which digitalis might otherwise cause, is antagonised, as it were, by the action it so strongly produces upon the blood-vessels; and that this latter action may even render large doses dangerous, when they are given to a much weakened heart.

[Dr. Fraser's article on *Strophanthus* and its action in Heart Disease will be found at page 200 of this volume.]

Adonis Vernalis in Heart Disease.—In 1881, Professor V. Cervello succeeded in isolating its active principle, a glucoside, to which he gave the name of *adonidine*. Botanically, *adonis vernalis* belongs to the family of *Ranunculaceæ*; it grows in elevated regions in Central Europe, and is very common in Southern Russia. In his clinical experiments an infusion of the plant was used, as the preparation of *adonidine* is expensive and laborious. *Adonis vernalis* was chiefly employed in double lesions of the mitral orifice, especially during the period of failing compensation, and, provided there was no degeneration of the myocardium, with great advantage; when degeneration of the myocardium has taken place, neither *adonis* nor any other remedy is of much avail. The dose of *adonis* given is from 2 to 5 grammes of the infusion in 150 grammes of water. After the drug has been administered for some days, the patients experience a sense of well-being, the oppression which accompanies mitral mischief diminishes, sleep is more readily obtained, the respiration becomes less hurried and deeper, the pulse less frequent and more regular, fuller, and stronger. There are, in short, all the signs of greater filling of the arterial system, and of relative emptying of the venous system. The cardiac area diminishes; so does the cyanosis, which may entirely disappear; the œdema lessens, and the volume of the liver diminishes; the symptoms of pulmonary stasis also disappear. The cardiac impulse is increased, the sounds become more audible, and the rhythm more regular. The urine is much increased, even doubled, and

the albumen is reduced or disappears completely. The chief effects on the circulation, then, are emptying of the overcharged veins and strengthening of the cardiac action with diminished frequency. In cases in which treatment was continued for two months, no signs of cumulative action were observed, showing that the drug is promptly absorbed and promptly eliminated. The action of *adonis vernalis* resembles that of the *digitalis* group of remedies, but it is free from some of the disadvantages attending the administration of *digitalis*; it is not cumulative in action, nor does it ever seem to cause irritation of the stomach or vomiting. Like the other remedies of the same group, it is indicated in those cases characterised by weak action of the heart, especially when the arterial system contains little blood with low pressure, and consequently the venous system much blood with increased pressure. (Dr. D'Arcy Adams's Abstract in Medical Record, Dec., p. 499.)

DELIRIUMS OF HEART DISEASE.—Dr. Clifford Allbutt has directed my attention to a peculiar delirium accompanying some forms of heart disease, which has not as yet been described in books, nor taught systematically in the schools. "This delirium may," Dr. Allbutt says, "be associated with any of the more common forms of heart affection, of which the valvular are the most readily met with and observed. In these diseases, whether aortic or mitral, there often appears a delirium in the later stages of the malady, when the patient is almost or quite laid by. The delirium is troublesome, and the subjects of it are often very unmanageable. But the common character of it is a *delirium of place*: the patient longs to be allowed to go home; or he insists on rising from bed, dressing, and going away by rail; or he is incessantly posted about in a carriage or coach; or he is in some new bedroom, house, or inn, and begs to be restored to his own chamber. I have now watched this delirium so often that I may say that such delirium, though by no means confined, strictly, to chronic heart disease, is most characteristic of it." To this delirium, so tersely and faithfully depicted, I should suggest the name *Delirium Inquietans*. (Dr. B. W. Richardson, *Asclepiad*, July, p. 221.)

[The penultimate portion of Dr. Richardson's article, from which the above is taken, will be found at page 171.]

HEART DISEASE IN CHILDREN.—*Rheumatic Origin of so-called Idiopathic Cases.*—The links in the chain of evidence which connect these cases with the rheumatic state are many and various. We are so accustomed to look upon the affection of the joints as the essential and distinctive feature, that we have difficulty at first in realising that this, the arthritis, is but one expression of the rheumatic diathesis, as M. Roger long ago maintained.

Endocarditis, pericarditis, chorea, erythema rheumatica, and tonsillitis are equally products or phases of the same constitutional state which we usually identify with the presence of fever and stiffness, and swelling and pain and tenderness of joints. And then, again, as I pointed out to you on the last occasion, the rheumatic series may be partial or more or less complete. Any one of the various phases may occur alone, or with one or more of the others in varying combination, in any order of sequence, nearly together in point of time, or with intervals of varying length between. The clinical examples of the three leading phases—arthritis, morbus cordis, and chorea, which I related—illustrated these features. In some the carditis occurs apart from the joint affection in children who previously have had well-marked acute rheumatism; as in the case of the girl with chorea, who had had rheumatic fever three years before the chorea, which, again, was followed by acute pericarditis, without any concomitant joint affection of any degree whatever. Not uncommonly the arthritis comes first in the series, followed by morbus cordis, and later by chorea. Another combination is that where the heart affection comes with the chorea, the joint affection appearing later in the rheumatic series. Another combination of the rheumatic series, again, which was illustrated by a striking example, is that where the heart affection comes first, followed after an interval by the acute arthritis, and later still by chorea. Another combination is where the chorea comes first, followed by morbus cordis, or *vice versâ*, the affection of the joints being missing from the series; or the affection of the joints and the morbus cordis may occur without the chorea, or the affection of the joints and the chorea without the morbus cordis, although this is rare; or, lastly, the arthritis, or the morbus cordis, or the chorea, may occur isolated and alone. In many of these cases of morbus cordis, where arthritis is apparently wanting, it has been simply overlooked from its slight and ephemeral character; in others, again, the rheumatic inflammation, small and transient, has affected the tendons about the joints instead of the joint structures themselves; in others the appearance of the subcutaneous nodules of Dr. Barlow and Dr. Warner may possibly be the only indication of the connexion of heart disease with the rheumatic state. Further than this, the rheumatic connexion in the cases of unexplained heart disease and those associated with chorea is constantly overlooked because the joint affection occurs later. The arthritis which we regard as distinctive has not appeared at the time the heart disease and the chorea occur; so that if such cases are recorded at the time they are no doubt set down as non-rheumatic. Even all these indications may be wanting, and yet the morbus cordis be due to rheumatic taint. There is yet another link connecting these

cases of heart disease with the rheumatic state—viz., the history of family predisposition. The tendency to acute rheumatism is as strongly inherited as the tendency to gout or to phthisis or to scrofula—or even more so than the two latter. Yet, although the existence of such predisposition has been acknowledged by some authorities, it is ignored by others, and has obtained little general recognition. Yet this hereditary tendency is intense, appearing in some families for successive generations—constantly in two successive generations—and in one form or other in many different members of the same generation. If you look at the tables, you will see how frequently rheumatic fever has occurred in one or both parents, or in sisters or brothers of the patient; or how one has had acute rheumatism, another heart disease, a third chorea. In some instances of unexplained heart disease and that associated with chorea, a history of strong family predisposition affords the chief, in some the only, evidence of the rheumatic association. (Dr. W. B. Cheadle, *Lancet*, Oct. 31, p. 793.)

[See also Dr. Cheadle's remarks on Treatment, at p. 198.]

MITRAL STENOSIS.—*Digitalis*.—In mitral incompetence digitalis may be given almost indefinitely, and patients often take it for years with obvious advantage, but such is not the case in mitral stenosis. In mitral stenosis the effects must be watched from day to day; at any time the action of the heart may all at once become disordered, many of its beats not taking effect on the systemic circulation, and failing to produce a pulse in the radial artery; the heart may be acting with fair regularity, and at the normal rate, when the pulse is rendered irregular in this way; or its rate may be slackened, and its rhythm disturbed, the effects of which will be exaggerated in the pulse. It is not uncommon to have established under the influence of digitalis the apparently alternating systole of the two ventricles already mentioned, so that quite regularly there will be two beats of the heart for one of the pulse, pulse and heart sometimes alike acting regularly; but more commonly, the heart-beats being coupled, a weaker beat following a stronger one at a briefer interval, giving on auscultation the sounds one-two—one (silence) one-two—one. This derangement of the heart's action is usually accompanied by a sense of oppression and distress in the region of the heart, and sometimes by nausea, and frequently the liver will be found to be swelling again. The digitalis should be at once suspended; afterwards a repetition of the mercurial aperient may enable the heart to bear it again, or its place may be taken by some of the other remedies enumerated. (Dr. W. H. Broadbent, *American Journal of Med. Sciences*, Jan., p. 85.)

[For valuable articles on the Mitral Murmurs, by Dr. Austin Flint, and on Mitral Stenosis, by Dr. Broadbent, see pages 186-196.]

NITRITE OF AMYL AND NITRO-GLYCERINE COMPARED. — The marked phenomena produced by the inhalation of nitrite of amyl and the resemblance between them and those which follow the administration of other nitrites and nitro-glycerine, have been made known to us by the investigations of Drs. Brunton and Cash, Dr. Murrell, Dr. Hay, and others; but all who have made observations on the comparative effects of these substances have noted the great difference there is between the duration of the influence of the amyl compound and that of the other nitrites and nitro-glycerine. Dr. Murrell has pointed out that, while the influence of amyl-nitrite is very transitory—a tracing taken a minute and a half after the inhalation of the drug appearing normal—the full action of nitro-glycerine is not observed in the sphygmographic tracing till six or seven minutes after the dose has been swallowed, and the tracing does not assume its normal condition for half an hour. Dr. Hay has further drawn attention to the fact, that nitrite of sodium checks anginal pains for a longer time than nitro-glycerine, from which it follows that the influence of the alkaline nitrite on arterial tension persists longer than that of the glycerine compound. But it has been noticed, too, that the phenomena produced by the nitrites and nitro-glycerine vary not a little in different individuals. Some people, for example, are powerfully affected by half a drop of a one per cent. solution of nitro-glycerine, but many can take five drops, and some even a larger quantity, without feeling any sense of discomfort. (Dr. D. J. Leech, *British Med. Journal*, Nov. 28, p. 1005.)

SPLENIC ANÆMIA IN CHILDREN.—Splenic anæmia is a severe form of progressive anæmia, which affects mainly the early period of childhood, and depends principally upon an hypertrophy of the spleen. Next follow in course the symptomatology, clinical history, and consequences of the disease process. As essential symptoms, Somma mentions a whitish-yellow discoloration of the skin, which is almost pathognomonic, and which corresponds in its variations with the progress and severity of the disease, also the enlargement of the spleen, which may be considerable, and finally the fever, which is continuous in the severe stages of the disease, remittent during periods of improvement, and at times may give place to apyrexia. The causes of the fever are not known. Occasional accompaniments of the disease are disturbances of digestion, swelling of the liver, disturbances of the circulatory apparatus, such as anæmic murmurs, and bleeding from the nose and skin. The central nervous organs, and those which preside over respiration and tissue change, show no disturbance. The duration of the disease is always very protracted, the course being unfavourable in most cases, the patients either dying in a cachectic condition or from some intercurrent disease.

In rare cases there are improvement and recovery. (Somma, Arch. of Pediatrics, Jan., 1886.)

THORACIC ANEURISM.—*Treatment by Introduction of Steel Wire into the Sac.*—The patient was a man, aged 48, who was admitted into the Middlesex Hospital on June 5th, 1885. He had been suffering from symptoms of a thoracic aneurism since November, 1884, but it was not till five days before his admission that a pulsating tumour made its appearance at the root of the neck, rising about three inches into the neck behind the right sterno-clavicular articulation. The patient was at first treated according to Tufnell's method, and given large doses of iodide of potassium. The tumour continued to increase in size, and it was evident that it must either soon burst externally, or extravasate among the tissues of the neck. On June 24th, Mr. Hulke introduced into the sac, through a fine canula, forty feet of steel wire. This caused no constitutional disturbance or local pain, and this portion of the aneurism became completely consolidated. Towards the middle of August, signs of the extension of the intra-thoracic portion of the aneurism—increasing dyspnoea, and severe paroxysmal cough—became more marked, and there was an increase of pulsation behind the sternum, and towards the left sterno-clavicular articulation. As it was evident that the aneurism must soon prove fatal from pressure on the trachea, it was determined to endeavour to consolidate the part of the sac producing this pressure. Accordingly, on September 10th, Mr. Gould, in the absence of Mr. Hulke, introduced a canula just above the left sterno-clavicular articulation, directing the instrument obliquely towards the middle line, and introduced 34 feet 9 inches of wire. No constitutional disturbance followed, but no relief was given to the symptoms, and the patient died in a paroxysm of dyspnoea on September 19th. On post-mortem examination, a large aneurism was found springing from the ascending part of the arch, and communicating with the vessel by a very large orifice; the whole of the upper portion was completely filled by a clot, embedded in which was the wire. The wall of the aneurismal sac, where it projected into the neck, consisted only of a little condensed connective tissue. The lower portion of the sac, near its origin from the aorta, caused compression and flattening of the trachea, just above its bifurcation. The first operation produced the desired result in preventing the imminent rupture of the aneurism. The size and connections of the sac rendered the second operation ineffectual. (Dr. W. Cayley, Brit. Med. Journal, Feb. 27, p. 395.) [Dr. G. Johnson thought the dangers from this treatment were threefold; 1st, from the local irritation produced, as in Mr. Moore's case; 2nd, from embolism which might take place in the brain or kidneys; and 3rd, from ulceration in the sac, which might be caused by the end of the wire.]

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ACUTE CORYZA.—Atropia.—The use of atropia in this disease is by no means a new one, and I make no claim to advancing a new idea. My object is simply to urge upon the profession a large use of the remedy, and note the results. The first case in which I used atropia in acute coryza, was that of a man in middle life, who had “caught a severe cold in his head” several days previously. When he came for advice the disease had reached an extreme stage. There were severe frontal headache, a hot, burning sensation in the nose, forehead, and cheeks, there was some conjunctivitis, and very profuse mucopurulent discharge, which was extremely irritating. The skin about the nose was irritated and inflamed, and the general condition was one of great misery. Atropia was given with the idea of decreasing the amount of the discharge. The dose was $\frac{1}{120}$ th of a grain, repeated after four hours. It had a most marked effect, and the next day the patient was quite free from headache, heat, and swelling, and from discharge. Since then the remedy has been tried in a large number of cases, in all stages of the disease, and at all ages, with uniform success. It is now my established practice, and is preferable to cocaine in this, that no local application is needed to the nose, thus saving a very painful manipulation. The only objection that has been made to the treatment, is where the eyesight is troubled. But the dose needed to cure the coryza is not sufficient to produce much disturbance of vision. It is only necessary to influence the secretion, and an extreme degree of dryness of the throat and nasal passages is of no advantage. (Dr. R. Gray, Philadelphia Med. News, Dec. 5, p. 622.)

ADENOID DISEASE OF THE NASO-PHARYNX.—Symptoms.—Take a typical case of this disease, and the symptoms are as follows:—A child, perhaps eight years old, and either male or female, is remarkable by the vacant expression of its countenance, which amounts almost to an air of stupidity. While you are talking to the parent or friend who brings it, you notice that its mouth is kept almost constantly open, and that it breathes with a peculiar snoring sound. The nose is generally narrow from side to side; the eyes are heavy; the face is lacking in expression. In reply to a question, it speaks in a “dead” voice, dull and nasal. The appearance of the child and the character of the voice suggest enlargement of the tonsils, and an examination of the throat frequently confirms this impression; for enlargement of the tonsils and granulations on the pharynx are often associated with adenoid vegetations. Or you may learn that the tonsils have already been removed, and that the improvement which was expected to follow the operation has either not been gained or has been

only partial. Closer examination discovers semi-purulent discharge running down the back wall of the pharynx from the naso-pharynx, and in many instances the soft palate is more forward and more fixed than usual. The patient is usually deaf; indeed, deafness is one of the chief reasons for which the child is brought. Inquire into the history of the case, when it will probably appear that the symptoms have been noticed in a varying degree for many months or several years, perhaps even from the earliest infancy. The dull expression, the muffled voice, and the discharge at the back of the throat have been present continuously from the first; but the deafness has been intermittent, or has been much worse at one time than another. There has occasionally been discharge from one or both ears, sometimes associated with pain and with all the symptoms of middle-ear catarrh. Occasionally, too, the discharge in the throat has been tinged with blood. The child has snored at night ever since the commencement of the symptoms. All the symptoms have been slowly growing worse, and have always been rendered more intense by a cold, to which the patient is usually very subject. (Mr. H. T. Butlin, p. 269.) [See also p. 272 for Treatment.]

CATARRH.—*Treatment on a Neurotic Plan.*—My plan of treatment for the arrest of catarrh is as follows: I keep a strong solution of bromide (1 in 3) and a bottle of tincture of belladonna (B. P.). When I am conscious of having taken cold, I take two to three drachms of the bromide solution in a small glass of water—that is to say, forty to sixty grains of bromide. I repeat this dose in six hours, and, if necessary, take a third dose at a similar interval. Meanwhile, as soon as a flux commences, I take twenty drops (equivalent to fifteen minims) of the tincture of belladonna in a little water every hour or two until the throat feels somewhat dry. The painting of the nasal mucous membrane with cocaine solution gives great relief, and powerfully contributes to the cure if the catarrh be severe. Since I hit upon this plan, I have never failed rapidly to arrest my own catarrhs, nor have I failed in any instance in which I have myself been able to superintend the administration of the remedies. (Dr. David B. Lees, p. 206.)

EMPHYEMA.—*Method of Resection of Ribs in.*—It is advisable not to raise the arm more than to a right angle with the body; or at least, if this be done, to note the extent to which the skin is drawn up by doing so, and then to pull it down before making the incision through the soft parts. If this precaution be not taken, the opening will be found to be valvular, and much inconvenience may arise at a later date in the introduction of the drainage-tube. Should this difficulty, however, arise, it may be obviated by making a second incision upwards at right angles to

the first. Such an incision gives more room, and it is not a bad plan to adopt it to start with, especially if the patient be very fat or muscular, rounding off the corners of the small flaps afterwards. The skin being then steadied by the finger and thumb pressed upon the rib, the first incision is carried down to the bone for a distance of two or three inches. After any superficial vessels are secured, the periosteum is divided and raised from the bone, as may most conveniently be done by means of an elevator with a cross-handle (an instrument introduced from Germany). The periosteum on the deep surface of the rib may readily be separated by a blunt and slightly curved elevator, which is then thrust beneath the rib to raise it beyond the level of those above and below it. This allows room for the introduction of the blade of a pair of ordinary string-cutting pliers, or that of a pair of forceps which I have had made, one blade of which is blunt and the other sharp, both being slightly curved. The cutting pliers will divide most ribs, but occasionally it is more convenient or even necessary to use a small saw. The rib is divided in front of and behind the elevator, and from an inch and a half to two inches are removed, leaving the periosteum and pleura uninjured and exposed. The knife is then carried through these structures, and, the parts being clearly seen, there is no difficulty in avoiding the intercostal artery, but should this be cut it is now quite easy to secure it and to apply a ligature at once. The opening in the pleura may be made quite small if desired, and increased by introducing the finger or a pair of closed dressing forceps, the blades of which are subsequently expanded. The finger is then introduced into the cavity and a thorough exploration made, and the pus, if aseptic, is allowed to escape under cover of a piece of rag soaked in carbolic lotion, which is placed over the wound. (Mr. Rickman J. Godlee, p. 275.)

HAY FEVER.—*Cocaine.*—The manner of employing the cocaine is not without importance. It may be used with a small atomizer as a spray. But the readiest means is to inject from five to eight drops up each nostril, the head being thrown backward; in some persons once, in most twice, daily will be found sufficient. It will be necessary to instruct patients not to irritate the membrane by rubbing it needlessly with the glass tube, or pushing this up too far. Thus, a patient who had had hay fever for thirteen years, and who was at the sea-shore on the 17th of August when the hay fever came on, and in whom tincture of *Ignatia amara* seemed favourably to influence its course, tried cocaine in one nostril only. He inserted the tube far up, irritated the membrane, and water ran from that nostril, which became sorer and more inflamed than the other. More judicious attempts produced better results, but he could not be persuaded to give the remedy a fair trial, owing to his first experience with it. Its

mode of action in hay fever is partly by the local insensibility it produces, partly by the contractions of the capillaries it induces. The effects are thus chiefly local. It will not arrest the bronchial catarrh or the asthma which attend some cases; yet it is astonishing how it seems to lessen the tendency to these complications when early applied, and before they have got much headway. Is its action, then, not partly a reflex action? That the remedy is radical, and, strictly speaking, curative, I have not found; but that it gives great comfort, converts bad into light cases, enables those to stay at their homes who otherwise are obliged to flee to hay-fever resorts, relieves much suffering and distress, I know and have fairly tested. In no case of rose-cold or hay fever ought cocaine to be left untried. (Dr. J. M. Da Costa, New York Med. Journal, Oct. 31, p. 504.)

HÆMOPTYSIS, PROFUSE.—*Treatment.*—At the Medical Society of London, on Dec. 14th, Dr. West read a paper on this subject, in which the following principles were discussed. 1. Rest of the body generally and of the diseased part. Many of the indications under this heading were to be met by the use of opium. 2. Hemostatics: (a) Topical astringents; (b) vascular constringents. Topical astringents could not be applied to the bleeding part of the lung, and if they acted at all it must be only as vascular constringents. The belief as to the use of vascular constringents in pulmonary hemorrhage was probably based upon an incorrect theory of the pathology, and reasons were adduced why they could not be expected to do good. Ergot was of doubtful value, for it constricted vessels smaller than those from which the hemorrhage came. The risk of death in profuse hæmoptysis was more from suffocation than mere loss of blood. Moreover, profuse hemorrhage tended to bring about of itself the conditions most favourable to its cessation. An attempt might be made to imitate these conditions in treatment. When a vessel was divided, hemorrhage ceased (1) from contraction of the vessel, and (2) from clotting of the blood, aided by the great fall of blood-pressure which severe hemorrhage induced. In hæmoptysis the vessel was so diseased that it could not contract at the diseased spot. There was no drug which by internal administration could increase the clotting power of the blood. The effect upon the blood-pressure could be imitated in various ways:—First, by free bloodletting from artery or vein. If bloodletting be inapplicable, the same end might be aimed at by detaining the blood in some part of the body other than the diseased part. This could be done by mechanical means, as by the use of Junod's boot, or by dilating some of the great vascular systems of the body and making them act as temporary reservoirs for the blood. The abdominal reservoir might be used temporarily by purgation; the cutaneous vessels by counter-irritation, or pos-

sibly by pilocarpine and nitrite of amyl; these drugs dilate the vessels throughout the whole body, and might possibly be of great service. The blood-pressure might be further influenced through the heart—by means of cardiac depressants, of which antimony is the most reliable; by nauseant emetics, of which ipecacuanha was much vaunted by Trousseau. Lastly, dieting was of great importance. The principle of absolute rest with a restricted diet, which is the essence of Tuffnell's treatment for aneurism of the thorax and abdomen, was equally applicable and useful in pulmonary hæmoptysis. Dr. Symes Thompson considered that in a great number of cases good resulted from free hemorrhage. He did not believe in the use of astringents, such as gallic acid, copper, and lead salts. Careful management with free purgation was far better treatment. Opium was useful when restlessness and excitement existed. Clinical experience went to show that even bleeding from aneurisms in the pulmonary artery was controllable. (Dr. S. West, Dr. Symes Thompson, *Lancet*, Dec. 19, p. 1144.)

INTRA-PULMONARY INJECTIONS.—The general result of my experience of these injections may be summarised as follows:—1. No harm has arisen in any one case; there has been no hæmoptysis; no evidence of pneumonia or general pleuritis set up by the injections; no evidence of any irritation or damage to the lung-texture, or to the cellular tissue at the seat of puncture. The ether has given rise to a feeling of faintness and giddiness; but these have been only of momentary duration, and have left no ill effects afterwards. Cough has frequently been present during the injection, but has ceased almost immediately. Pain around the side has been present in one case; and in another, pain has been felt extending down from the shoulder, along the arm, in attempting to inject above the scapula behind. Pleuritic pain and friction have been present in two cases; but of a very evanescent character, and not accompanied by any rise of temperature. 2. The positive results obtained have been as follows. In Case I, of lung-gangrene, there was diminution of the fœtor, and general alleviation of the symptoms. In Case II, of chronic pleuro-pneumonia, with basic cavities, there was diminution of expectoration, and some improvement in general condition. In Case III, of chronic tubercular pleurisy, there was very marked improvement under treatment. In Case IV, there was some little improvement whilst under treatment, but nothing definite as a result of the injections. In Case V, no definite result has yet been observed. Case III was the only one in which improvement could reasonably be expected; in the other cases, the treatment was adopted with no great expectations as to the result. These cases do not, therefore, go far to establish the utility of intra-pulmonary injections in phthisis and other diseases

of the lungs; but they do show that the practice may be looked upon as a safe one, and that it is likely to be of benefit in suitable cases. I have been unwilling to adopt this method in cases where steady improvement has been induced by other methods of treatment; and, further, when the lungs have been in a hopeless state of excavation, I have also not cared to carry out a practice which could only be looked upon as useless interference; hence the number of cases so treated has been of necessity small; but the results have been encouraging, and I have little doubt that intra-pulmonary injection will become a familiar, an efficient, and a useful addition to our methods of treatment of chronic diseases of the lungs. (Dr. Shingleton Smith, p. 209.)

LUNG DISEASE.—*Necessity of Urging Expectoration in Certain Cases.*—In many cases of pulmonary disease, patients are apt to state that they have no expectoration. On examining the chest, evidence is found indicating abundant secretion into and from the bronchial tubes. There may be much cough, and yet the spittoon is regularly found empty. It is well-known that children commonly swallow their sputa in lung-disease. Adults often do likewise. The habit is in every way bad, and may be pernicious. In cases where there is evidence that expectoration should be forthcoming, I am in the habit of *ordering* the patient to eject everything he coughs up, and it is surprising how much can be thus produced for inspection. Habit, false delicacy, and ignorance lead patients to swallow their expectoration. The sputa, being thus added to the contents of the alimentary canal, interfere with digestion, and in the cases of bacillary phthisis, foetid bronchitis, and empyema with bronchial fistula, may add mischievous products for inoculation or septic impregnation. And, in any case, a prominent sign of the morbid process is withheld from our view. This may seem a trivial matter, but I deem it a very important one, and commend the practice I have here inculcated for systematic adoption when necessary. (Dr. Dyce Duckworth, St. Bartholomew's Hospital Reports, 1885, p. 120.)

TRACHEOTOMY, ETC.—*Feeding by a Nasal Tube in.*—After the operation of tracheotomy there is often great difficulty in getting the patient to take sufficient nourishment. The pain caused by the movements of swallowing makes children refuse food which they are quite able to digest, and thus they are apt to be half-starved at a time when it is essential that they should be well nourished. They will not take more than a few spoonfuls at a time, and their rest is seriously interfered with by the constant attempts to feed them which are necessary in order to keep them alive. A more serious and also a common occurrence is, that fluids pass into the larynx and so into the lungs, where they set up bronchitis and pneumonia; after each attempt to swallow the

child coughs, and some fluid returns through the tube, showing that it has passed into the trachea. These difficulties may be avoided by means of feeding through the nose with an india-rubber catheter and a syringe. A No. 4 indiarubber catheter, well anointed with vaseline, can easily be passed through the nose of quite a small child into the stomach, and through it liquid food may be injected in sufficient quantity to render the repetition of the performance unnecessary for some hours. By this means we can insure that no food passes into the air passages, that the child receives as much as it can digest, and that the intervals between feeding are sufficiently long to allow of several hours' uninterrupted sleep. We also know exactly how much the child has taken in a given time—a calculation which is very difficult in spoon-feeding, where so much is unavoidably spilt and spluttered up. This method of feeding is also applicable in cases of *diphtheritic paralysis and diphtheria*, in fact, in all cases in which there is danger of food passing through the larynx, or in which the pain of swallowing is so great as to interfere with the proper nourishment of the patient. (Mr. J. F. Buller, Practitioner, Oct., p. 263.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

CHOLECYSTOTOMY.—At the meeting of the Clinical Society on Oct. 23, Mr. A. W. Mayo-Robson read the narratives of two successful cases of this operation. In the first case, Mr. Robson was consulted in June, 1884, by Mrs. B., aged 33, on account of a tumour of the size of a hen's egg; it caused dragging pain and uneasiness, but there had never been any jaundice. It was then diagnosed as a distended gall-bladder, but consent to operate was not obtained until June 21st, 1885, when, the tumour having greatly increased in size, with augmentation of the discomfort, cholecystotomy was performed, and eight faceted gall-stones were removed from the cystic duct. They varied from the size of a pea to that of a large bean, and were of a dark brown colour. The gall-bladder contained nearly half a pint of clear watery fluid, which was removed by an aspirator before the cyst was opened. Peritoneum was then sutured to peritoneum, and mucous membrane to skin, and the rest of the wound was closed by catgut-sutures, a drainage-tube being inserted into the gall-bladder. Recovery was uninterrupted, union occurring by first intention, and the patient being able to go for a drive on the seventeenth day. A minute fistula remained in September, just capable of admitting a small probe. It discharged a little thin mucus, but gave no inconvenience. The patient was feeling well in every respect, having gained in strength and weight. The second case was that of a German governess, aged 22, who

was admitted into the Leeds Infirmary, under the care of Dr. Churton, in February, 1885. There were vomiting after all food, a history of prolonged constipation, and a tumour in the position of the hepatic flexure of the colon, the size of which was unaffected by many large enemata; the vomiting continued. It being then suspected that the tumour was a distended gall-bladder, the patient was transferred to Mr. Robson, who performed cholecystotomy, removing numerous small white calculi, and eight ounces of clear fluid. The steps of the operation were exactly the same as in the first case, and in both the finger was passed inside the peritoneum, along the cystic duct, in order to be sure that no calculi were left to cause a block in the passage. After the operation, the vomiting absolutely ceased, and recovery was uninterrupted, the pulse and temperature being normal throughout, and the wound healing by first intention. The fistula discharged a clear mucous fluid for a time, but on September 15 had completely closed. It, however, re-opened in October, and again discharged the same kind of fluid, the patient experiencing no discomfort or pain, and feeling absolutely well in every respect. Mr. Robson remarked that the cases resembled one another in being both examples of multiple gall-stones causing, or else simply co-existing with, a persistent block in the cystic duct; and in neither case was there any existing jaundice, or previous history of such; but, whilst the diagnosis in one was perfectly clear, in the other, although the nature of the disease was suspected, a distinct diagnosis was not made until the abdomen was opened. Whilst in Mrs. B.'s case the symptoms were chiefly dragging pains and loss of flesh, in the other persistent vomiting and constipation were principally complained of. In the operations, which were performed antiseptically, pains were taken to stitch peritoneum to peritoneum, and mucous membrane to skin, great care being exercised in protecting the peritoneal cavity from the intrusion of any of the contents of the tumour. In the after-progress, the discharge of clear fluid free from bile, and the length of time elapsing in the second case before the fistula closed, soon, however, to reopen (the fistula in the first case never having closed), indicated that the cystic duct remained blocked in both; but, there being no jaundice and no illness, the common ducts were evidently patent; moreover, since the finger introduced into the peritoneum and passed along the cystic duct failed to discover any perceptible enlargement, and a probe passed as far as it would go failed to feel any hard body, the only conclusion to which he could come was that in these cases there was organic stricture of the ductus cysticus. He raised the question, was there organic stricture of the cystic duct in both cases, or was the obstruction due to other concretions which careful probing and intraperitoneal digital exploration failed to discover?

If he thought there were calculi causing obstruction, he would not hesitate to advise laparotomy as a preliminary to cholelithotripsy; but if there were stricture, which he believed, then he would hesitate to advise another operation; since, if the stricture were dilated, contraction would be likely to recur, again giving rise to a tumour requiring further treatment. Mr. Robson remarked on the clinical importance of the fluid, which, he thought, might possibly be mistaken for hydatid fluid in an exploratory puncture. He believed that there were many cases of frequently recurring biliary colic without the presence of a tumour, where cholecystotomy would in future be adopted as a relief to suffering, and as a preventative of the many dangers of exhaustion, biliary toxæmia, rupture, suppuration, and ulceration into neighbouring cavities. In conclusion, he could not help feeling that the surgical treatment of gall-stones opened up a comparatively new field in abdominal surgery, which, unlike many surgical triumphs, was at the same time safe and efficient. (Mr. Mayo-Robson, British Med. Journal, Oct. 31, p. 833.)

COLOTOMY.—*Its Indications.*—What are the indications for colotomy? 1. In congenital malformations of the rectum or anus in children in which a tentative operation in the perineum has failed to reach the rectal pouch. 2. In intestino-vesical fistulæ. 3. In tumours occluding the rectum which cannot be relieved by any other means—dilatation, division, hot water, or electrolysis. 4. In non-cancerous, simple or specific stricture and ulceration of the rectum (with or without fistulæ), where the disease cannot be relieved by proctotomy or dilatation, or division of fistulæ, and local treatment of the ulceration. 5. In cancer where the disease can neither be removed nor the passage re-established, and where death is probable from obstruction—except in cases where the immediate dangers of the operation more than counterbalance any good likely to be gained by it. 6. In volvulus or intussusception of the colon or sigmoid flexure, where reduction by the aid of laparotomy has been found impossible. (Dr. C. B. Kelsey, New York, p. 300.)

DISTENDED GALL-BLADDER.—*Diagnosis.*—The size of the tumour is often very misleading. Thus, in Ziemssen's Encyclopædia, Prof. von Schueppel mentions one case "which occupied almost the entire abdomen," and had grown to that size in eight months. Another, reported in the Lancet, 1878, reached the iliac fossa in a downward direction, and two inches beyond the linea alba in the transverse; and a third, an empyema, is spoken of as being "as large as a man's head." Size, therefore, is clearly very little to be depended upon. The feeling communicated by the tumour is also very deceptive, seeing that it is sometimes very hard, at others

very soft, sometimes "fluctuating," sometimes "elastic;" and the shape is almost as unreliable, for though at first it is necessarily pyriform, yet as the distension advances it loses more and more of that characteristic, until it may be quite globular, or even irregular, in shape and outline. Some patients remember that it was originally pear-shaped, but the patient's statements on this head cannot often be relied on with any certainty. Position is said to afford a more trustworthy guide; and on this head I quote from Mr. John Taylor, of Birmingham, who writes on it to the following effect. "In many cases of distension of the gall-bladder, there is no difficulty. The history of biliary colic, and the passage of calculi, together with the physical signs, make the diagnosis easy; but, in some cases, especially those in which the obstruction is due to a single calculus, or some other cause, there is evidently very great difficulty. An important aid to diagnosis will, I think, be found in the recognition of the diagonal line in the direction of which the gall-bladder enlarges. This is to be traced from the normal position of the larger end of the gall-bladder (near the tip of the cartilage of the tenth rib on the right side) to the opposite side of the abdomen, crossing the middle line slightly below the umbilicus. In the direction of this line, a distended gall-bladder will, I believe, naturally lie." Another guiding line that has been given is a line drawn from the acromion process of the right shoulder to the centre of the pubes. Which of these two, or whether either of them, will eventually prove of practical utility, I cannot say; nor should I have mentioned them, seeing that I am unable practically to confirm either of them, if it had not been that Mr. Taylor speaks confidently of the former one, and that, in an operation so novel as that of which I am speaking, we may have reason, from time to time, to be thankful for all the help we can obtain. (Mr. C. G. Wheelhouse, p. 281.)

FÆCAL ACCUMULATION.—*Cause of Acute Symptoms in.*—I would venture to think that the outset of acute symptoms in the course of these chronic cases may depend in some few instances upon abrupt occlusion of the colon by torsion or kinking. By such an accident a sudden interruption would be brought about in the line of any peristaltic movement, and an injury would be inflicted upon the intestinal nerve plexus that, in the already critical state of the canal, would form the starting-point for the phenomena of acute obstruction. In another set of cases the acute phenomena are due to the peritonitis that may attend fæcal accumulation, and to which allusion will be made later on. In other instances—and these form, no doubt, the greater number—the acute and possibly final trouble depends upon a distension of the small intestine. The long-tried ileum becomes at last exhausted, the limit of its muscular strength is reached,

material accumulates above the valve, a distension of the terminal part of the small intestine follows, and the physical conditions needed to produce symptoms of acute obstruction are present. It is often to be observed in clinical records that in cases of chronic obstruction acute symptoms have followed the administration of a purge. By such means matters are hurried through the small intestine, an accumulation takes place above the ileo-cæcal valve, the ileum becomes distended and possibly paralysed, and a fresh train of symptoms is prepared. The sudden accumulation forms a burden that is beyond the strength of the overtaxed ileum. It is the last feather, and the bowel succumbs. (Mr. F. Treves, p. 287.)

Fæcal Accumulation.—Treatment.—Enemata form, without doubt, one of the most efficient means known for dealing with fæcal accumulations. The injection should be copious, and should be given, when possible, in the knee-and-head, knee-and-elbow, or lateral abdominal position. The best material is water at a temperature of about 100°, although some prefer mixtures of soap and water, or of turpentine and water, or of oil. No anæsthetic should be used, so that the patient's sensation may afford some test of the amount of pressure employed. If any symptoms are present that raise a suspicion of stercoral ulcers, it is needless to say that the injection should be conducted with the greatest caution. The fluid should be very slowly introduced, and should be forcibly retained for ten or fifteen minutes; and while the colon is well occupied therewith the fæcal mass should be gently kneaded. By far the best instrument to use is the inflator designed by Mr. Lund, of Manchester. Very copious injections can be introduced by means of this instrument without the escape of any fluid from the anus being permitted. By its employment, also, such enemata can be administered without assistance. No especial advantage would appear to attend the distension of the bowel with air (insufflation) or with carbonic acid gas. The "long tube" is, I venture to believe, both a delusion and a snare. I am very much disposed to doubt whether that tube has ever been passed beyond the sigmoid flexure. I have made many patient attempts upon the dead body, but have never succeeded in reaching the descending colon. If the peculiar outline of the sigmoid or "omega" loop be called to mind, and if the immediate environment of that part of the colon be considered; it will be evident that a semi-rigid tube moving without guidance could only escape from that loop by a strange combination of accidents. In many instances the pipe bends upon itself and curls up in the ampulla of the rectum. At other times it reaches the flexure and curls up there. It must be remembered that the sigmoid meso-colon has an average length of three inches and a half, and that that measurement might be greatly exceeded. Through

the abdominal parietes it may be possible to feel the point of the tube at the umbilicus, or even on the hepatic side of the navel, although the tube has progressed no further than the summit or centre of the sigmoid loop. Here is a case in point. In a certain patient, thin from disease, the long tube was passed. Its extremity was to be felt near the umbilicus. I was assured that it had reached the transverse colon, and that the bowel below that point was clear. In due course the woman died, and there was revealed an almost impervious stricture at the upper end of the sigmoid flexure. (Mr. F. Treves, *Lancet*, Dec. 26, p. 1182.) [See also p. 287 of this volume.]

Fæcal Accumulation.—Use of Massage in.—Lastly, in the matter of local treatment, must be mentioned massage, and of its value in the present class of cases it is difficult to speak too highly. The best method appears to be that advised by Kriviakin. The patient lies upon his back; the hands of the operator are oiled, and, with the fingers widely opened, both palms are laid upon the abdomen; the hands are made to pass systematically in various directions; the pressure exercised is steady and deep, and the movements are slow; the manipulation on each occasion should extend over fifteen or twenty minutes, and should be repeated at such intervals as may be considered advisable. The results that have been obtained by Kriviakin, and by many others whose experiences are on record, afford most substantial support in favour of this mode of treatment. It is adapted only for that form of chronic obstruction that depends upon fæcal accumulation. In certain of the recorded cases acute symptoms had set in and the vomiting had become fæculent, and it is in these aspects of the malady that the good effects of massage have been the most striking. I have myself made use of this measure in several cases of fæcal accumulation, and have so far met with no results that oppose the conclusions of Kriviakin and others. There is no mystery about the measure. Zabłudowski, by a series of experiments, has placed massage upon a scientific basis. He has shown that it restores exhausted muscle in a remarkable manner, that it increases the blood-pressure in the part and raises the local temperature. As Dr. Weir Mitchell well expresses it, massage is a most potent mechanical tonic. With regard to its effect in cases of fæcal accumulation, it must act largely as a mechanical agent, influencing the conformation of the stercoral mass and modifying its position. It would appear also to act as a direct stimulant to the intestine, for within a few minutes of the commencement of the manipulation peristaltic movements are excited, which may in time reach such a grade as to cause much colicky pain. It is possible that such effect may be brought about by the immediate stimulation of Auerbach's plexus, under the control of which the peristaltic

rhythm is supposed to lie. The stimulation also of the skin of the abdominal parietes may be not without influence. It is supplied by branches from the last seven of the dorsal nerves, and it is significant that it is from these very nerves that the splanchnics are in greater part derived. The part played by the splanchnics in the abdominal nervous system need not be commented upon. Their precise influence upon the bowel has yet to be established, but, so far as movement is concerned, they appear to contain both excitator and inhibitory fibres. These explanations of the effects of massage are not entirely satisfactory, nor are they such as would satisfy the captious doubter. The doubter, however, can wait, and in the meantime the practical man may be satisfied that he has in massage a therapeutic measure of considerable value. (Mr. F. Treves, *Ibid.*)

HÆMATEMESIS NEONATORUM.—This hybrid term may be allowed to describe a symptom which sets in soon after the birth of a child, and not unfrequently leads to its death. The specimen which Dr. Sawtell showed at the Clinical Society on Oct. 9th was an excellent example of multiple ulceration of the mucous membrane of the stomach of the newly born. That the fatal hæmatemesis was due to these ulcers no one could doubt; but in many cases of the sort no ulceration can be detected; and, indeed, according to many authors, such ulcerations are certainly rare. But one of the most recent works on children's diseases—Dr. Goodhart's—states that gastric ulcers are not very uncommon in the newly born, and ought to be attributed in some way to the disturbance of balance in the circulatory system which supervenes on the separation of the infant from the placenta. Dr. Radcliffe Crocker made a happy suggestion in attributing such ulcerations to a "purpura" of the gastric mucous membrane, and akin in nature to the less dangerous purpura neonatorum. (*Lancet*, Oct. 17, p. 726.)

INTUSSUSCEPTION.—*Insertion and Inflation.*—The manner in which inflation should be performed is as follows:—An ordinary bellows is connected with a gum-elastic enema tube by means of a piece of rubber tubing, which is firmly wired at either end. Around the base of the enema tube lint should be wrapped, so as to make a conical and air-tight base. The tube is inserted about three inches into the rectum, and the anus closed by the conical plug of lint. Further to guard against the escape of air back through the anus when inflation is commenced, an assistant should press the edges of the buttocks firmly together. It is very important that an anæsthetic should be administered up to the stage of muscular relaxation before the operation is commenced, otherwise the forcible contraction of the abdominal muscles will leave the operator little chance of effecting his

object. As soon as anæsthesia is complete, the child should be seized at the ankle and knee on either side, and be raised vertically with his back to the operator, the head being allowed to rest on a pillow. The enema-tube is next inserted, and the anus closed in the way directed. An assistant now places his hand over the tumour in the abdomen to watch the effect of the operation, and the inflation is commenced. The air is at first forced slowly in, and the effect watched through the abdominal wall. The upper part of the rectum or sigmoid flexure will probably be seen to swell up, and the tumour may be noticed to change its position somewhat. If the tumour show little tendency to yield, more rapid action of the bellows may be employed. How, then, are we to know that the intestine has been reduced, and there is no longer occasion to continue the operation? There are three indications of the reduction of the bowel—(1) The assistant whose hand is over the tumour will feel this gradually sink away and be lost; (2) a gurgle of air will at the same time be felt by the assistant, and often heard by the bystanders; (3) the whole abdomen becomes suddenly and uniformly distended and tympanitic. When these signs of reduction have occurred, the enema-tube may be withdrawn and any compressed air be allowed to escape, and the surgeon may leave the case with a feeling of contentment that he has almost certainly saved a life. The after-treatment consists in limiting the diet to milk and ice, and in administering stimulants if there be a tendency to collapse. Small doses of opium may also be given to relieve pain and check any tendency to diarrhoea. (Mr. Clement Lucas, *Lancet*, Jan. 16, p. 99.)

Intussusception of the Upper Part of the Jejunum of Twenty-one Months' Standing.—At the Clinical Society, on Feb. 26th, Dr. Goodhart read notes of a case, of which the clinical interest depended upon its long duration, and upon the resemblance of the abdominal tumour, during life, to a floating kidney. The case occurred in the practice of Mr. Sandford Arnott, of Brixton. The patient, a girl, aged 19, had been first seen a year and three-quarters before her death, and was then suffering periodical attacks of vomiting and abdominal pain, with progressive wasting. A knotty irregular tumour was felt in the lower part of the abdomen, above the uterus. She then attended the out-patient department at King's College Hospital, for eight months, and subsequently at University College Hospital, with obstinate constipation, fæcal tumours, and what was thought to be a floating kidney. She was relieved by enemata of sulphate of magnesia, but, notwithstanding, her attacks recurred, and in these she was frequently seen by Mr. Arnott. The abdominal tumour never disappeared, but latterly it altered its position, and came to correspond with the situation of the left kidney. It

varied in size and shape, some days being decidedly kidney-shaped; and generally it had a curve in its length, the concavity being towards the umbilicus. She was seen by Dr. Goodhart in her last attack, because the vomiting had been more severe and continuous than before. She was then pale, and very thin, although not giving the appearance of any extreme emaciation. Her mother described her as hardly ever free from sickness for more than a week, the actual attack lasting generally twenty-four to thirty-six hours. Lately, she had been sick almost daily. The abdomen being exposed, the existence of a dilated stomach was at once apparent; it occupied the upper half of the abdomen, and its muscular contractions were plainly visible; but below this, in the left inferior quarter of the abdomen, was a second tumour, running from the flank obliquely downwards towards the pubes. This was the mass that had been felt throughout the progress of the case. It was an elongated tumour, that underwent slow rhythmic alterations, becoming alternately hard and soft, and was obviously some part of the intestine in labour. Vaginal and rectal examination gave no additional information. However, it was clear that there was some intestinal obstruction, although there was no sufficient material for determining its exact nature. She had never passed any blood, the evacuations being always of a light brown colour; and, although she suffered from constipation, it was never such as to resist the action of an aperient. It was arranged that she should be admitted to Guy's Hospital; but, before this was accomplished, she died, apparently from the exhaustion of the continued vomiting. At the post-mortem inspection, made by Mr. Arnott and Dr. Goodhart, the dilated stomach was found to occupy the greater part of the abdomen. Below, and to its left, in the inguinal region, were two or three coils of small intestine, small, but prominent, as if something pushed them up from behind; and, on turning them aside, a large intussusception was seen; it ran from near the spine into the pelvis, and looked more like rectum in thickness and size, but it proved to be small intestine, the neck of the intussusception being at the commencement of the jejunum. It was about eighteen inches in length, and, when further examined, was found to be associated with, and no doubt caused by, the existence of large polypoid masses of growth which sprang from the mucous membrane of the small intestine in several parts. Dr. Goodhart stated that no blood had been passed at any time from the bowels. (*British Med. Journal*, March 6, p. 444.)

JEJUNOSTOMY.—At the Clinical Society on Nov. 27th, Mr. C. H. Golding-Bird read notes of a case of jejunostomy. The case was that of a man, aged forty-six, who had had symptoms of pyloric obstruction for ten months. When admitted into Guy's

Hospital a tumour could be felt at the seat of the pylorus, and the man's general condition was one of extreme emaciation through the inability to retain the food he took, and his voluntarily abstaining from eating on account of the pain he suffered. After three weeks' treatment under Dr. Carrington by drugs and washing the stomach out, he passed into Mr. Golding-Bird's hands, and when all the risks had been explained to the patient, and all methods of palliation had failed to improve his condition, arrangements were made to explore the diseased parts, and remove them if expedient. Mr. Golding-Bird therefore, on Oct. 25th, 1885, cut down on the pylorus with a view to performing pylorotomy, following the lines laid down by Billroth; but, finding the tumour adherent to the liver, he determined to go no further with the radical operation, but to convert it at once into a palliative one of opening the jejunum—in other words, of performing jejunostomy. Having seized the jejunum two inches from the duodenum, it was held up on a pair of tongue-forceps, whilst the wound in the parietes was united; to the lower or right end of this wound was the jejunum now stitched by interrupted sutures. The patient suffered in no way as the result of the operation. He was fed partly by the rectum, partly by the mouth, until the third day, when the bowel was opened and food administered solely through the fistula. It was observed that as long as the meal amounted to a pint or nearly so, the patient each time he was fed had a severe attack of indigestion, but that this ceased when the meal did not exceed ten ounces. On this the author founded the suggestion that some cases of indigestion were due to the pylorus allowing too free passage of chyme, rather than to disturbance of the gastric or pancreatic secretions. Everything went on perfectly well till the ninth day, the patient gaining flesh; but on that day, through an error in feeding him, some food passed into the peritoneum, and he died in twelve hours. The post-mortem inspection showed such adhesion to and infiltration of the liver of the cancerous pylorus that pylorotomy could not have been performed. Except the narrow track made by the probe, and along which the food passed into the peritoneum, the adhesions of bowel and parietes were perfect. The author then reviewed the operation of pylorotomy, speaking in favour of it in suitable cases, and the operation of gastro-duodenostomy, as performed by Wölfler, and pointed out the great drawback in this operation, that the stomach is not relieved of its physiological duties at all, the pylorus not being required to act. For the operation of jejunostomy, as he termed the one that he detailed, he claimed that, whilst it possessed the same disadvantage as gastrostomy, in that the patient had to be fed through the fistula, it was otherwise the best palliative operation for pyloric cancer, inviting less

risk than gastro-enterostomy and requiring less interference, in its performance, with the other viscera. By duodenal digestion, he also pointed out, full nourishment could be assured, and there was, for physical reasons, less chance of regurgitation of food than after gastrostomy; regurgitation in these cases being a serious drawback to that operation in œsophageal constriction. (Lancet, Dec. 5, p. 1047.)

RECTUM.—*Excision of for Malignant Disease.*—The local condition which more than all others would determine for or against an operation, would, of course, be the extent of the disease and its seat. Without too fine a definition by lines, it may be said roughly, that when the disease extends beyond reach of the finger, or rather unless the finger can reach up to sound tissue beyond the disease, it is very doubtful indeed whether it should be touched. Of course, I know very well that five and even five and a half inches have been excised with good results, and that Nussbaum in one instance had the hardihood to excise not only the first and second portions of the rectum, but a part of the urethra, the prostate and base of the bladder, and that his patient recovered; but I also know that many disasters have followed a far more restricted operation than that, and that for one case which succeeds many will fail. We want to determine what is the limit of a safe, hopeful, and satisfactory operation, which does not put the patient's life in danger, and holds out a good chance of arresting for a definite time the disease from which he suffers. The whole disease must be removed with a margin beyond, and no risk run of opening the peritoneal cavity, or causing dangerous bleeding. If the finger can reach well beyond the utmost limit of the disease, and finds smooth sound tissue beyond; if the disease is on one side only (especially the posterior), or, if all round, is not too extensive, or too closely amalgamated with the tissues in front—*i.e.*, with the urethra and prostate in the male, and the vagina in the female; if there is no deep ulceration, many fistulæ and much change of texture; if the glands are not involved, and there is no deep pressure, and if the patient is in fair health, of good constitution, and not too much broken down by age or suffering; and if there is no indication of the liver or other internal organ being invaded, then excision is, in my opinion, a fair and legitimate operation. Anæmia is of itself no barrier, but the cachexia of blood poisoning is, if distinct, too serious a warning to be overlooked. (Prof. G. H. B. Macleod, p. 293.)

[For Dr. Macleod's mode of Operation see p. 293.]

STRANGULATED HERNIA.—*Treatment of Sac with a view to Radical Cure.*—Prior to the general acceptance of antiseptic methods of treating wounds, the operations for the radical cure

of hernia were regarded as too dangerous and uncertain to be often practised. In cases of strangulated hernia, opening the sac was considered to increase the risk of the operation. On this point opinion has entirely changed. It is generally recognised that it is the condition of the strangulated intestine which determines the mortality, and that it makes little difference to the issue of a case (except, perhaps, in regard to umbilical hernia) whether the sac be opened or not. Hence the ground of controversy has shifted from the question of opening the sac, which excited so much discussion among surgeons of the last generation, to the question of the advisability of dealing more completely with cases of strangulated hernia, and, after relieving the stricture, proceeding to adopt measures to prevent the recurrence of the hernia. These measures differ in detail in the hands of different surgeons. Some remove the sac without ligaturing; some ligature it without removing it; some ligature it first and remove it afterwards. Omentum may be returned, or ligatured *en masse* and removed, or removed first, and each bleeding vessel may then be twisted or tied. Some think it unnecessary to suture the rings through which the hernia descended; others deem this step essential; and the material used may be different and treated differently after operation—catgut, silk, wire, kangaroo or ox tendon being left in the wound altogether or subsequently removed, as the surgeon elects. It cannot be said that the removal of sac or omentum adds appreciably in itself to the risk of an operation for strangulated hernia. It may prolong an operation, and so occasionally be inexpedient, or the surgeon may think it of little value as a protection against further descent of bowel or omentum, and so reject it; or he may have been in the habit of operating in the old fashion, and be too conservative to turn aside from the beaten path. In my own opinion, the adoption of measures to prevent recurrence of a rupture or the performance of the radical or semi-radical cure, in operations for strangulated hernia, is a distinct advance on the old method. It has the advantage of taking away an extraneous substance from the part, of allowing the patient to adjust a truss more comfortably, and of lessening, if not abolishing, the risk of recurrence. On the other hand, it should not be practised where the state of the bowel is at all doubtful, or if, in the opinion of the surgeon, it would increase the danger to the case, or if it would injuriously prolong an operation. Wherever risk is increased by an unusual procedure, the consent of the patient ought to be previously obtained after full explanation. I am strongly inclined to believe that in umbilical hernia, if the sac has to be opened, the risk to the patient is decidedly lessened by excising it after reduction of the protruding bowel, as well as by removal of all adherent omentum. The after advantages to the patient are

conspicuous. If the sac is opened, the stricture relieved, and the sac and omentum left, there is a serous cavity communicating with the peritoneum in which putrefactive processes may readily occur and spread. Possibly this may have been the cause of the considerable mortality after operations for the relief of umbilical hernia. At all events, surgeons have been imbued with a dislike to interfere with these cases, and prefer exhausting every resource before operating. Doubtless a large number of cases of umbilical hernia are reduced by taxis, but a considerable proportion remains for operation, and of these many may die. This being so, I think there is every reason for departing from the old groove, more especially as confidence has been infused, whether rightly or wrongly, by antiseptic methods. The reason why I have not sooner been able to bring forward cases of umbilical hernia treated in this way is that the other cases have mostly been reduced by taxis. The foregoing comprise all my recent cases of hernia. It will be observed that in the cases of femoral hernia I merely removed the sac and contained omentum, and did not suture the crural ring. I do not know that I have very much faith in the efficacy of straining the pubic portion of the fascia lata and Poupart's and Gimbernat's ligaments by inserting and tightening a wire or any other ligature, and at present I think a sufficient barrier is created by the amalgamation of the stump of the sac and the stump of omentum which are left just inside the crural ring. (Mr. Walter Rivington, *Lancet*, Oct. 24, p. 757.)

Strangulated Hernia.—Removal of Sac.—For several years I have been in the habit of excising the sac, when called upon to operate for strangulation in cases of hernia (of whatever kind), and I have been led to do so, not so much for the purpose of producing a radical cure (though this was an advantage), as to lessen the mortality from the operation. I regard the sac itself as a danger, from its badly nourished texture, its tendency to suppurate or slough, and its liability to collect discharges, and guide them into the peritoneal cavity. To rid the patient of this abnormal, overstrained, ill-nourished, not only useless, but absolutely injurious, piece of tissue, should be the aim of every surgeon when called upon to operate for strangulation, after reducing the bowel. To speak of such a proceeding as "unsurgical" is a wanton misuse of the adjective. It is probably the only operation for radical cure that will bear the test of time. I regard no operation for femoral hernia complete till the sac has been excised, even though the bowel may have been reduced before opening the sac. The same may be said of acquired inguinal hernia. The congenital inguinal presents especial difficulty, as the whole sac cannot be excised without sacrificing the testicle; but I usually excise the funicular portion, and rigid antisepsis is here advisable. (Mr. Clement Lucas, *British Med. Journal*, Oct. 17, p. 741.)

STRANGULATED UMBILICAL HERNIA.—*Excision of Sac and Skin covering it, with Suture of the Ring.*—*Case 1.*—A married laundress, aged 48, had suffered some years from winter cough, but, till June, 1883, believed herself healthy. She then began to suffer from dropsy. In July, 1884, paracentesis abdominis was performed, when she was under the care of Dr. Wilks. She was tapped a second time in February, 1885, and a third time on April 9th of this year, when eighteen pints of fluid were withdrawn. She then had very general anasarca, *râles* over both lungs, and dulness of the bases, urine depositing one-third albumen on boiling, and containing some blood. On May 22nd, at 4 a.m., the umbilical hernia, which she had had some years, became strangulated, and Mr. Lucas operated at one o'clock, having failed to reduce it by taxis. It was found necessary to open the sac, when a considerable quantity of fluid escaped, and a large piece of purple small intestine came into view. The opening was enlarged so far as to admit the finger into the abdomen; but, owing to the water pressure behind, it was found impossible by manipulation to reduce the bowel. Finding the obstacle to reduction was the peritoneal fluid, Mr. Lucas placed the patient on her side, and, holding the intestine on one side, with his finger passed through the aperture, allowed in this way three and a half pints of ascitic fluid to escape. After this, the bowel was easily returned. He then cut away the whole of the sac, and afterwards all the thin distended skin. Three stout chromicised catgut sutures were next passed through the margins of the umbilical opening to the peritoneal surface, tied, and cut short. The skin-margins were then brought together with wire sutures. Carbolic spray and antiseptic dressings were used. Sickness ceased at 10 the next morning, and the patient was comfortable. All the wire stitches were removed on the sixth day, and the wound appeared to be healed, although the urine still contained one-third albumen and some blood. A few days later, slight suppuration took place, and the cause proved to be one of the catgut stitches, which came away unchanged on the fifteenth day. After this, she gradually improved, and left the hospital on July 25th, at which time there was no tendency to protrusion at the umbilicus. *Case 2* was that of an exceedingly stout plethoric woman, aged 52, who was admitted into Guy's Hospital on September 6th, 1885. She was married, and had four children. When lifting a heavy pole of clothes eleven years ago, she first felt something give way at the navel. Since that time, she had on four occasions required chloroform for the reduction of the hernia, which was of large size. The last time it was thus reduced was in August, 1884. At 10 a.m. on September 5th, as the result of a severe fit of coughing, the rupture became distended and irreducible. She was seized with severe

pain over the stomach; and vomiting occurred soon after, and continued till her admission at 7 o'clock in the evening of September 6th. Her bowels had not acted since the hernia came down. She was sick soon after her entry, bringing up dark greenish fluid. She was in much pain, and very restless. The hernia was of large size, and uneven on the surface, four inches by three in diameter, tense, devoid of impulse, and tender on manipulation. Taxis having failed both before and after the administration of chloroform, Mr. Lucas proceeded to operate at 9 o'clock in the evening. A vertical incision, about four inches in length, was made at the upper part of the tumour; and, the sac being exposed, the ring was divided outside, and taxis again applied without success. The sac was then opened, and some blood-stained fluid escaped. The sac was found to contain a large mass of adherent omentum, forming an omental sac, within which the bowel was strangulated. After division of the stricture, several feet of dark-coloured intestine were reduced; the transverse colon then appeared in the sac, but it was not strangulated. Two large pieces of omentum were then ligatured with green catgut and cut away. The sac was next separated from its connections, and cut away, except at the lower part, where the adherent omentum made it impossible completely to remove it. Three stout green catgut ligatures were then passed through the edges of the aperture to the peritoneal surface, and the opening thus closed, the stumps of adherent omentum and sac being outside. The skin was cut away, and its edges brought together with wire-sutures, and an aperture left for drainage at the lower front. Carbolic spray and antiseptic dressings were used. She had no sickness after the operation, and was quite relieved from abdominal pain, the abdomen remaining soft and free from tenderness. On the 10th, there was a rise of temperature, and, on being dressed, some blood-stained discharge escaped from the lower part of the wound. After a week, a slough came away, evidently the remnant of the sac and stump of omentum. After this she rapidly improved, and had a normal temperature. Her bowels acted on the 15th. On September 23rd, the drainage-tube was removed. On the 27th, she was up, and was practically convalescent. The cases illustrated the value of removing the sac and closing the abdominal aperture. Neither patient was in a good condition for operation, one being in an advanced stage of dropsy from heart-disease, the other exceedingly fat and flabby. In both a large quantity of bowel was strangulated, and in one the hernia was much complicated by adherent omentum. In both some suppuration occurred, and in one sloughing; yet no suppuration extended to the peritoneum, as would probably have been the case had the aperture been left patent. Both patients recovered

without any symptom to cause serious anxiety. (Mr. Clement Lucas, *British Med. Journal*, Oct. 17, p. 741.)

[A long and animated discussion followed the reading of Mr. Lucas's paper, in which not a little disagreement with his views was manifested.]

Umbilical Hernia.—In umbilical hernia, the natural tendency to contraction of the abdominal opening is interfered with if a nipple-shaped pad is used. The pad must be flat, of a considerable size and thickness, and in the child it is best kept in position by the use of a broad elastic bandage. If the pad is made of layers of flannel, it should be placed next the skin, under the chemise; the elastic roller is then passed round the body over the chemise, and a large safety-pin is passed through the bandage, chemise, and pad, fixing the last firmly in position. (Prof. Chiene, p. 280.)

SUPPURATION AROUND THE VERMIFORM APPENDIX.—*Treatment by Abdominal Incision*.—At the Clinical Society, on Dec. 11th, Mr. Godlee read for Dr. T. Barlow and himself the notes of this case. The subject of the paper was a man, aged 20, whose previous history was unimportant, except that for the last two years he had been subject to attacks of diarrhoea and vomiting. His illness began rather acutely on September 12th, 1885, with loss of appetite, severe abdominal pain, and, later, vomiting and absolute constipation. He was admitted into University College Hospital on the 15th, with a temperature of $102\cdot4^{\circ}$, intense abdominal pain and tenderness, intermittent bilious (not stercoraceous) vomiting, and tight distension of the abdomen. There was a small patch of slight redness in the right iliac fossa. The diagnosis appeared to be between mischief about the appendix and constriction of the intestine by a band high up. He was given opium and iced beef-tea, and ice was applied to the abdomen. The temperature fell to normal, and the pulse was about 90, full and soft; the tongue was dry, and the colour good; but, as the symptoms were unrelieved, an exploratory incision was made in the middle line on the night of the 16th. General early peritonitis was found, but lymph only in the neighbourhood of the cæcum surrounding a collection of foetid pus. The vermiform appendix was much thickened. A second incision was made on the right iliac fossa, and a large drainage-tube was inserted through it reaching down to the appendix, a smaller one being placed in the median incision, which was closed with sutures. The peritoneum was first washed out with a solution of corrosive sublimate (1 to 500). The patient made an excellent recovery, the temperature remaining normal, and the pulse about 90. He was fed principally by the bowel for some time; beef-tea and arrowroot were allowed on the twentieth day, and

minced meat a fortnight later. No drugs were given, except morphine for the first two days. Thirst was allayed by means of warm water enemata. He had slight albuminuria a day or two after the operation, and a little later a parotid bubo occurred, which did not suppurate. It was alleged that the uncertainty of the diagnosis justified the exploration, and that the early evacuation of the putrid pus rescued the patient from a condition of very great danger, and prevented the matting together of the intestines which would otherwise have occurred. The freedom with which the peritoneum might be treated was pointed out, and the advisability of withholding food from the stomach for a prolonged period in such cases was insisted upon. Remarks were also made upon the absence of peritonitis, and the presence of albuminuria, as points in the diagnosis, and upon the relation between inflammation of the parotid and diseased states of the peritoneum. (British Medical Journal, Dec. 19, p. 1161.)

ULCER OF STOMACH.—*Perforation into Heart.*—At the Academy of Medicine in Ireland, on Jan. 15th, Dr. Finny exhibited an extremely rare specimen of an oval ulcer (one inch by half an inch) of the stomach, situated on its anterior wall two inches and a half from the cardiac and two from the lesser curvature, leading up to and perforating the heart. The floor of the ulcer was the muscular structure of the under surface of the left ventricle, about one inch from the apex; and the ulcer, after perforating the stomach, had eaten through the diaphragm and the pericardium. The stomach was adherent to the diaphragm round the ulcer, but the adhesions were very slight and of recent date. The pericardial sac had been obliterated by adhesive inflammation, and over the whole of the left ventricle the adhesions were very dense. Through the larger of several interstices between the exposed muscular tissue of the apex a probe could be passed upwards, and was found to enter the left ventricle behind a musculus papillaris attached to the posterior mitral curtain. The patient from whom the morbid specimen was removed had died of syncope on December 9th, 1885, preceded by the passage of blood from the bowels. Strange to say, there was no hæmatemesis. At the necropsy the stomach and the whole intestinal canal were found full of liquid blood, the stomach alone containing two quarts. The source of the blood was the left ventricle, and it is probable that it escaped into the stomach during both systole and diastole. The fatal steps in the pathological history of the case were: (1) Ulcer of the stomach, of unknown duration; (2) rheumatic pericarditis and adhesions of the left ventricle to the diaphragm, with obliteration of sac; and (3) recent activity in the ulcer perforating into the muscle of the heart. The general muscular structure of the heart under the microscope was perfectly normal, and free from fatty

degeneration, except the fibres at the floor of the perforation, which were granular and broken down, though free from all fat. Dr. Finny referred to the anatomical relations of the liver and stomach to the diaphragm, and stated, by observations made, that while, in the majority of instances, the liver by its left lobe entirely separates the stomach from the portion of the diaphragm to which the pericardium is applied, there are exceptional specimens where the left lobe of the liver is small and pointed, where a small triangular portion of the extreme front of the pericardial aspect exactly corresponds to the anterior wall of the stomach in the very position of the ulcer present in this case. There are three similar cases recorded in Vienna: the first by H. Chiari in 1880, the second by F. Brenner, and the third by Oser in 1881; and each of these observers, like Dr. Finny, seemed to have been unaware of the other reported cases. (*Lancet*, March 13, p. 493.)

AFFECTIONS OF THE URINARY AND GENERATIVE SYSTEMS.

ACETONÆMIA.—With regard to what has been called “acetonæmia,” I may say at once that I do not believe in the theory involved in the term “acetonæmia.” Of course the coma is not a matter for belief; we all know that patients are very apt to die in a comatose state—a fact I mentioned in my work on Diabetes, the second edition of which was published in 1869; and the same observation had been previously recorded by our countryman, Dr. Prout. Why, therefore, it should now be called Küssmaul’s coma I cannot conceive, seeing that he only described it in 1874. So far as I am enabled to judge, this comatose state arises from a deprivation of power in certain nerve centres, and thus fatigue, or anything which tends to throw the patient off his balance, will tend to produce it. I have often met with it in patients who have undertaken a long journey to see me. They were buoyed up by hope on their way to London, but when they presented themselves in my consulting-room I have been enabled even then to recognise the first indications of the advent of coma, and the patient has died in the course of a day or two. I am inclined to consider that the coma depends, as I have said, rather on the exhaustion of certain nerve centres than on the action of any direct poison in the blood. A simple attack of vomiting may lead to it in a diabetic patient who has not been able to eat anything for a day or two. It is usually ushered in by a rapid pulse and a peculiarity in the breathing. There is a breathlessness or out-of-breath condition, not dependent on any impediment to the entrance of air into the chest, but simply as though the patient were unable to get suffi-

cient for his requirements in the peripheral parts of the system. He becomes drowsy, and this deepens into a comatose state, terminating in profound coma and death. It has long been known that a fatty condition of the blood is frequently observable in diabetes, and this has been suggested as a possible explanation of the coma, through the production of fatty emboli. But I maintain that this fatty condition of the blood is a purely physiological state. Fat shows itself normally in the blood after the ingestion of a meal containing much fatty matter. When formerly lecturing on physiology, I used to demonstrate this in the blood collected from an animal shortly after the free ingestion of fatty substances, and which, after standing for a little time, presented a well-marked cream-like layer on its surface from the aggregation of the fatty particles. It is, I repeat, only a physiological condition; and its presence in the blood of diabetic patients may be accounted for by the great amount of food they take, and especially from the fatty nature of a large proportion of it. (Dr. F. W. Pavy, *Lancet*, Dec. 12, p. 1086.)

ALBUMINOMETRY.—*Esbach's Tubes.*—The usual method for the quantitative determination of albumen in the urine in the course of clinical work must be regarded by everyone as unsatisfactory. It consists generally, according to my experience, in boiling a test-tube about half filled with the urine, allowing the coagulated albumen to subside, and then getting by sight a rough estimate of the proportion of the albumen to the amount of urine employed, which must necessarily vary with the idea of the proportion according to the observer,—where one person would call it an eighth, another would say a tenth, and so on. There is a method used as clinical routine in many of the French hospitals, which is in every way as convenient as this, but which yields results possessed of numeric accuracy, and which serves to give a good idea of the actual amount of albumen a patient is losing by his urine. The method was devised by Dr. Esbach, and consists in the precipitation of the albumen by means of picric acid. After standing twenty-four hours, the precipitated albumen reaches a certain height in the tube, and it is according to the height to which it reaches that the amount of albumen is determined. The tube is empirically graduated in such a way that the number to which the precipitate reaches gives directly the grammes of albumen per litre of urine. The reagent for precipitation is made by dissolving ten grammes of picric acid and twenty grammes of citric acid in 800 or 900 c.c. of boiling water, and then adding sufficient water to make one litre. Urine is poured into the tube up to a certain mark, the reagent added up to another mark, and then the tube is inverted about a dozen times to mingle well the contents, and placed in the vertical position for twenty-four hours, when the height to which

the subsided precipitate has reached gives the grammes of albumen per litre. The tubes can be procured for three or four shillings from Brewes Frères, 43, Rue St. Andrè des Arts, Paris. (Mr. T. E. Blomfield, Radcliffe Travelling Fellow, Lancet, Jan. 23.)

ALBUMINURIA.—*Cyclic or Intermittent Albuminuria of the Apparently Healthy.*—The following is Dr. Pavy's description of the urine in this remarkable condition. Examined at one period of the twenty-four hours, the urine is found to contain, it may be, a large amount of albumen, whilst, at other periods, there is none, and what is observed one day is repeated with more or less closeness the next. These cases thus have a cyclic character belonging to them, hence my adoption of the term "cyclic albuminuria." It appears to me an appropriate one to employ for the purpose of classification. The description to be given of what is noticeable is as follows. In the early morning, the urine is free from albumen; albumen then shows itself, it may be at 9, 10, or 11 a.m., or not till the early part of the afternoon. After reaching its maximum it declines, and often by the evening has disappeared. It is rare to find that it has not disappeared by bed time. The period of diurnal appearance is, without too closely limiting it, pretty uniform for each case; some days the amount may be observed to fall, and then rise again; also there may be considerable variation in the amount of albumen observed upon different days. The condition noticed may go on, not only for weeks and months, but even for years. It is not accompanied by any impairment of health, and there are none of the ordinary constitutional indications of the existence of Bright's disease present. (Dr. F. W. Pavy, p. 217.)

Cyclic Albuminuria.—[In the Lancet for March 6th, 1886, Dr. Pavy makes a further communication upon this interesting and important condition, in which he says:—"Taking it as accepted that there are certain cases of albuminuria of the kind that has been referred to, standing distinct from those falling under the category of Bright's disease, the object presenting itself to be attained is to acquire information which will give us a full knowledge of their history, and enable us to recognise them when they may happen to fall under view. The cyclic character noticeable in the condition of the urine under the ordinary round of daily life constitutes a valuable feature in the case from a diagnostic point of view; and the influence exerted by keeping in bed throws an important light, certainly from one aspect, upon the origin of the daily revolution observed." The first of Dr. Pavy's cases in this communication is given with full details, and careful observations were made upon it, to show the influence of rest, feeding, and cold bathing upon the appearance of albumen in the urine. The case was as follows:—E. M. B., aged 20, had

been engaged as a probationary clerk in the Bank of England. He did not know that anything wrong about him existed till he presented himself for medical examination, before being accepted for the permanent staff, when his urine, passed at 11 a.m., contained albumen. He was rejected by the examining medical officer. Examination of the urine on several days showed that in the early morning it was free from albumen, that from 10 to 11 a.m. it was albuminous, that at about 4 p.m. the albumen was less, and that at bedtime it had entirely disappeared. The specific gravity of the urine was usually 1034, or thereabouts, frequently deposited urates, contained crystals of oxalate of lime and uric acid, but never casts or blood elements. Details of the observations, under the experimental conditions, are given in the paper. It will suffice to state here that (1) under fasting during the morning the albumen showed itself as usual; (2) keeping in bed during the morning led to the urine remaining free from albumen throughout the morning. The appearance of albumen was thrown on till later in the day, and then only an insignificant amount was found in comparison with that ordinarily observed; (3) a cold bath in the early morning and return into bed afterwards did not produce any effect upon the urine. It appears that in Dr. Pavy's cases, the albuminuria bears a distinct relation to periods of the day when the patients have to be continuously upon their feet.] (Dr. Pavy, p. 217.)

BRIGHT'S DISEASE.—*Elements of Prognosis in.*—At the New York County Medical Association on November 16, Dr. Austin Flint read an important paper on the elements of prognosis in Bright's disease. Dr. Flint recapitulated his conclusions as follows:—

1. Acute Bright's disease, as a rule, does not tend to a fatal issue, or to become chronic.
2. The same is true of subacute nephritis.
3. Acute or subacute nephritis may occur as an intercurrent affection in the course of chronic Bright's disease.
4. Susceptibility to the recurrence of such acute or subacute attacks is afterwards to be apprehended.
5. Chronic Bright's disease may exist indefinitely, provided the kidneys are not damaged to the extent of more than one-half, and the accessory conditions remain favourable.
6. The adequacy of the function of the kidneys has relation chiefly to the amount of excrementitious elimination carried on.
7. The danger from the accumulation of excrementitious products is diminished if elimination takes place vicariously.
8. Uræmic coma occurring in chronic Bright's disease may be due to intercurrent acute nephritis; so that if the impending danger can be averted, the patient may be restored to the same condition as previously. The same may be true of pulmonary œdema occurring in the course of Bright's disease.
9. Renal asthma is generally, if not always, of fatal import.

(Philadelphia Med. News, Dec. 5, p. 638.)

CALCULUS OF FEMALE BLADDER OF LARGE SIZE.—*Removal by Vesico-Vaginal Incision.*—In the Dublin Journal of Medical Science for October, 1885, the Master of the Rotunda Hospital relates a case of large calculus of the bladder, resulting from vesico-vaginal fistula high up in the vaginal wall. Great difficulty was experienced in removing the stone, crushing with a large male lithotrite having to be resorted to. Dr. Macan says:—“When considering afterwards the great difficulty experienced in this case in getting hold of the stone with the lithotrite and crushing it, and the unavoidable injury done to the walls of the bladder during the operation, and further the danger of the patient suffering from permanent incontinence of urine from over-distension of the urethra, I determined that in future I would remove any large stone by incision of the vesico-vaginal septum in preference to the method adopted on this occasion. I have since had the opportunity of putting this resolution into action, and from my experience in these two cases I have no hesitation in saying that the method by incision of the vesico-vaginal wall and subsequent closure of the wound by sutures is infinitely preferable in all cases where the stone is of large size. The exact limit, where danger of permanent incontinence from dilatation of the urethra commences, was shown by the late Prof. Simon, of Heidelberg, to be a diameter of 2 cm. Should the stone, therefore, exceed this limit, I would remove it by incision, rather than by crushing with a lithotrite.” (Dr. R. V. Macan, Dublin Med. Journal, Oct., p. 276.)

DIABETES INSIPIDUS COMBINED WITH DIABETES MELLITUS.—It is worthy of notice that diabetes insipidus and mellitus may exist together, and their co-existence can be proved in the following manner. Take, for example, a patient who is suffering from thirst and is passing a large quantity of urine containing sugar, but in whose case, as shown by the specific gravity and quantitative examination, the amount of urine is out of the usual proportion to the sugar present. Put him upon the ordinary restricted diet for diabetes, and the sugar may entirely disappear, whilst the quantity of urine keeps up. I have seen cases in which, with a disappearance of sugar, the quantity of urine has nevertheless kept up to eight, nine, or ten pints in the twenty-four hours, with a specific gravity of from about 1005 to 1007. The diabetes mellitus has been got under by the dietetic management, but the other has remained. Where the two conditions coexist, the quantity of water passed is, as I have said, out of proportion to the amount of sugar present. In the ordinary form of diabetes, the amount of urine voided stands in relation to the amount of sugar to be eliminated, the sugar, in escaping, carrying off water from the system with it. A patient whom I saw with Dr. Eustace Smith, in 1876, passed

ten pints of urine in twenty-four hours. The specific gravity was 1013, and the amount of sugar 19·10 per 1000. The case affords an illustration of a great excess of urine without a correspondingly large elimination of sugar. (Dr. F. W. Pavy, *Lancet*, Dec. 12, p. 1086.)

ENLARGED PROSTATE.—*Its Nature and Causes.*—In my paper recently published on some Changes in Form of the Prostate and Floor of the Bladder, I have shown that the inter-ureteral bar of muscular fibres so frequently met with in cases of enlarged prostate is to be regarded as the outcome of efforts, by the development of extraordinary agents of micturition, to expel urine from a part where it is apt to lodge and cause inconvenience. In connection with these investigations, I have met with instances where an unusually depressed state of the floor of the bladder, or trigone, appeared to me to have existed previously to an enlarged prostate; in fact, that a condition of residual urine preceded, and was not the sequence of, enlargement of the gland. The trigone, or floor of the bladder, in addition to being a highly sensitive part, is peculiar in that it contains but few muscular fibres in its composition; muscle in abundance may be found as low as a line corresponding with the openings of the ureters, and marking the superior boundary of the trigone, and below in the prostate; between these two points the power of muscular contraction can hardly be said to exist. Assuming that, from any cause, such as long retention of urine, habit, position of the body, or the weakness connected with advancing years, the trigone, or con-contractile part of the bladder, becomes permanently depressed or altered in form, so that the person finds himself unable to get rid of the last half-ounce or so of urine, the effect will be frequently repeated expulsive efforts in all the muscles immediately adjacent to a part which, by reason of its connexions and structure, has no power of exercising contractility. This will eventually lead, as I have shown, to the hypertrophy of the muscular fibres between the orifices of the ureters—the inter-ureteral bar—as well as, I believe, to that of the muscular fibres so largely entering into the composition of the prostate. In this, I submit, will be found the immediate cause of prostatic hypertrophy. (Mr. Reginald Harrison, p. 310.)

Tunnelling the Enlarged Prostate.—The enlarged prostate is probably the worst and most unmanageable of the various afflictions peculiar to old age in men. The misery to which it gives rise is very great. We draw attention, therefore, with pleasure, to Mr. Reginald Harrison's paper on tunnelling the gland. This process, or operation, will be found described fully. The result is to cause atrophy of the gland. He observes:—"I would recommend the adoption of tunnelling the prostate from

the perineum, as the best method of tapping the bladder in all cases of emergency where retention of urine from an enlarged prostate occurs, and catheterism is found on proper trial to be impossible; and, secondly, this operation may be undertaken with the view of inducing atrophy of the gland, in cases where the functions of the bladder are so interfered with as to render life almost intolerable. In the observation of a considerable number of cases of difficult catheterism due to large prostates, I have often thought in some instances that far less damage would have been done, directly and indirectly, if the practitioner, on appreciating his difficulty, had used a trocar in a suitable position than persevered with the catheter." (Mr. Reginald Harrison, p. 314.)

EXTRAVASATION OF URINE.—*Cock's Operation.*—Besides freely incising infiltrated tissues, Cock's perineal section ought to be systematically performed in such cases. The urine has a free exit, and the effects of the extravasation subside more quickly. This plan of treatment has been carried out in many cases of extravasation of urine during the last five years, and with the best possible results. The perineal opening is usually made at the same time as the incisions. I shall be told that the performance of a perineal section in a patient who is suffering from the effects of a long-continued stricture is not unlikely to be attended by some serious consequences. My answer is, the operation is so simple, it can be performed so quickly, that its risks are very much less than those which would be encountered if the stricture itself was dealt with by any method. I have already seen enough of this mode of treatment to estimate its value highly in cases where there is impairment of the general health owing to the existence of a narrow stricture, in conjunction with a distinct deterioration in the condition of the urinary tract behind the obstruction; also in cases where extravasation of urine has already occurred. (Mr. T. Jones, Med. Chronicle, March, p. 465.)

NEPHRECTOMY.—*Its Indications and Contra-Indications.*—In an analytical study of nearly four hundred and fifty cases of different operations on the kidney, the following conclusions are formulated:—1. That lumbar nephrectomy is a safer operation than abdominal nephrectomy. 2. That primary extirpation of the kidney is indicated: first, in sarcoma of adult subjects; secondly, in benign neoplasms at any age; thirdly, in the early stage of tubercular disease; fourthly, in rupture of the ureter; and lastly, in ureteral fistula. 3. That nephrectomy should not be resorted to until after the failure of other measures; first, in subcutaneous laceration of the kidney; secondly, in protrusion of the kidney through a wound in the loin; thirdly, in recent wounds of the kidney or of the ureter, inflicted in the performance

of ovariectomy, hysterectomy, or other operations; fourthly, in suppurative lesions; fifthly, in hydronephrosis and cysts; sixthly, in calculus of an otherwise healthy kidney; and, finally, in painful floating kidney. 4. That nephrectomy is absolutely contra-indicated: first, in sarcoma of children; secondly, in carcinoma at any age, unless, perhaps, the disease can be diagnosticated and removed at an early stage; and, thirdly, in the advanced period of tubercular disease.—*Am. Journ. Med. Science*, July, 1885. (Dr. S. W. Gross, *Annals of Surgery*, Oct., p. 336.)

NEPHRECTOMY FOR SUPPURATING KIDNEY.—Even nephrectomy does not always result in a complete cure, the sinus which remains being often difficult to heal, and it has remained in some cases unhealed for a period of five years. When a kidney has been already subjected to an operation for nephrotomy and drained, the condition of the two organs can be easily determined; and if the healthy kidney be sufficient for the wants of the individual, and the diseased one little more than a suppurating sac no longer capable of secretion, the obliteration of the abscess cavity is obviously indicated. Whether quite as good results cannot be obtained by scraping and irrigating the suppurating shell of a kidney as could be expected from its complete removal is a matter for future investigation; but all the experience of the past tends to show that nephrectomy must in such cases give way to some less formidable procedure, and that the exact rules which should form an indication for its performance have yet to be laid down. (Mr. Bruce Clarke, *Lancet*, Nov. 7, p. 845.)

NEPHRITIS.—*Action of Nitro-Glycerine on.*—1. Nitro-glycerine in small doses diminishes the quantity of urinary albumen passed per diem and still more markedly the percentage of albumen in the urine. 2. The diurnal quantity of urine is perceptibly increased by nitro-glycerine, this increase persisting some time after the nitro-glycerine has ceased to be given. 3. Gradually increasing doses of nitro-glycerine influence still more decidedly the formation of albumen. 4. I have been unable to determine the influence of nitro-glycerine on the weight of the urine, the weight of the patients, and on the dropsy. 5. With the exception of slight and transient headaches, nitro-glycerine does not give rise to any disagreeable symptoms. Further observations which are still in progress will show whether the continued action of nitro-glycerine is always such as I have stated, or whether it is so in the majority of cases only. I am also conducting observations to show how the weight of the urinary albumen depends upon the quantity of liquid drunk, the quantity of urine passed, the use of alcoholic liquors, &c. (From Dr. Theodore Maxwell's translation of a paper by Burzhinski, *St. Petersburg, Practitioner*, Sept., p. 169.)

PERI-RENAL CYSTS. — It has happened a few times in my life that I have seen cases of what, for want of a better name, we have called “peri-renal cyst,”—cases, that is, in which the cellular tissue of the renal region has become converted into a cyst, and has become charged with many pints of fluid, clear, straw-coloured, and closely resembling urine in physical characters, but differing essentially from it in those of a chemical nature. These have generally been the result of accidents, involving heavy and protracted squeezing of the loin—producing, as I have thought, a condition of chronic inflammation, not only of the cellular tissue, but probably of the kidney also; and developing a lining membrane which, like the pyogenic membrane of an abscess, has both a secreting and an absorbing power. To the fluid secreted by this lining membrane there has probably been added, by endosmosis, some of the constituents of the urine, though by no means all. By gradual enlargement, and by pushing all the abdominal viscera forward in front of itself, the cyst makes room for its own advance, and for the accumulating fluid. Such cysts it was formerly our practice to evacuate by trocar; and this proceeding almost invariably converted them into abscesses, even if it did not excite such an amount of constitutional irritation as to end in death; and I can call to mind no single case of ultimate recovery. Of late years, I have not seen such a case; but, if I should do so in future, I should have no hesitation in treating it by free incision and drainage; and, all being conducted under rigid antiseptic precautions, I should look for, and be disappointed if I did not attain, complete success. (Mr. C. G. Wheelhouse, p. 281.)

POST-PROSTATIC PUNCTURE OF THE BLADDER FOR CONTINUOUS DRAINAGE.—*A New Method.*—To perform the operation, the patient is placed in the lithotomy position, and, if the bladder be contracted, it can be filled from the urethra in most cases. The forefinger of the left hand is then passed into the rectum, and made to explore the prostate and inferior surface of the bladder. Some sort of idea can then be formed of the distance the trocar will have to travel to reach the bladder, and the direction. The forefinger being retained in the rectum, a trocar and cannula, of the size of a No. 12 catheter, is thrust through the skin about three-quarters of an inch in front of the anus, and slowly pushed on till resistance is felt to have disappeared; the trocar is then withdrawn, and the bladder emptied. The subsequent steps of the operation require no description. In my cases, the metal cannula was maintained, but it would be better to pass through it into the bladder a No. 8 red elastic tube, and withdraw the cannula. It is a great advantage to be able to introduce so large a tube, as the chances of its becoming blocked are reduced to a minimum. Finally, to make the patient comfortable, a tube is attached to the

catheter, and the urine drained into a bottle. To retain the catheter, Mr. Appleton, of Beverley, devised a very simple apparatus. It consists of a triangular piece of thick leather, with a hole in the centre, through which the catheter passes. One small hole behind, and others at either of the front corners, permit the tapes passing, which are attached to a belt round the loins. (Mr. E. H. Howlett, p. 316.)

PROSTATITIS WITH HYALINE CASTS.—At the Clinical Society, on Jan. 8th, Sir Andrew Clark related a case of acute prostatitis, with discharge of hyaline cylinders resembling renal cylinders, seen by Sir James Paget and himself. The chief interest lay in the circumstance that during the whole course of the case there were found in the urine hyaline cylinders and small flask-shaped hyaline masses, which in some instances were connected with the cylinders. The patient recovered by resolution. It is nearly seven years since the date of the attack, and the patient, a medical man, has remained quite well. Sir Andrew Clark alluded to two other cases, also of medical men, which had come under his personal observation. They might be mere curiosities of medical experience, but as no reference to the discharge of hyaline casts in prostatitis could be found in standard works or special monographs, he thought the case of sufficient importance to be brought to the notice of the Society. (Lancet, Jan. 16.)

SUPRA-PUBIC LITHOTOMY.—Lithotrity at a single sitting is the only operation which is now to be thought of for nine cases out of ten presenting in the adult calculous patient. Neither stricture of the urethra nor hypertrophy of the prostate, neither chronic disease of the bladder nor organic disease of the kidneys, are conditions which forbid the application of the crushing operation, or demand instead thereof any application of the knife. Now, it will be clear, I think, that the question which surgeons at the present time require to determine is, What is the best proceeding to employ as a supplement to lithotrity for those unusually large stones for which that operation is inadequate? I do not say that any single proceeding is to be held up as necessarily the best and only possible one, applicable to every condition outside the comprehensive limits of the crushing operation; but that there is one which is, in my opinion, conspicuously superior to all others, I have no hesitation in declaring. My experience, although at present not very considerable, has amply sufficed to satisfy me that we have no proceeding at all comparable to the high operation for stones of the kind referred to. I will go further, and will add that it is my belief that in the hands of most operating surgeons this proceeding will prove a safer and a far easier one than lithotrity, with all its advantages, for hard stones when they have arrived at a weight of about

1½ oz. or 2 oz. We have no time to enter upon the history of the operation, for it is an old one, dating from the middle of the sixteenth century; but were we to pursue the details of that interesting story, we should observe that there are two chief sources of danger which have been more or less associated with the high operation in the minds of surgeons from the earliest times to the present. The first is the chance of injuring the peritoneum from its natural proximity to the symphysis pubis; the second that of urinary infiltration and its effects on the cellular tissue around the neck of the bladder. The first is unquestionably the chief, and the most to be dreaded, due as it may be to the narrow limit in some subjects of what may be called "the supra-pubic interval." As I have said, liability to dangerous infiltration of urine about the neck of the bladder has been regarded as one of the objections to the supra-pubic operation. I do not believe it to exist if the proceeding has been properly executed. We have only to deal with the question of danger arising from proximity of the peritoneum to the line of incisions. Can we ensure the presence of an adequate supra-pubic interval through which a calculus of the largest size can be safely extracted? I think this important question can be answered in the affirmative. Some few years ago observations appear to have been made in more than one quarter in relation to this matter. One of the most important, perhaps, was that made by Dr. J. G. Garson, now curator at the Hunterian Museum here, who made some laborious researches at Vienna in 1877 on the effect of rectal distension upon the bladder in adult bodies afterwards frozen, sections from which were carefully measured by him, and drawn. His memoir thereon was read for him by Professor Braune at the Congress of German Surgeons, April 12th, 1878; it was illustrated by plaster casts of the sections, and the drawings afterwards published in Germany and also in this country in the following autumn. Professor Petersen, of Kiel, was present, and there is little doubt that he was thus led for the first time to test by practice the theoretical question of abundant space for the high operation there raised by Garson. For in April, 1880, at a subsequent meeting of the same Congress, Peterson read a paper advocating a resort to the supra-pubic route, on grounds derived from the facts described; and he appears to have been the first to establish the practical facility which they offered to the lithotomist called upon to deal with calculus of large size. (Sir H. Thompson, *Lancet*, Dec. 5, p. 1031.)

[Sir Henry Thompson's description of the Supra-Pubic Operation here referred to will be found at p. 303.]

VESICAL CATARRH.—*Use of Stigmata Maidis.*—The tassel-like tufts or stigmata or green pistils of the Indian corn (*Zea mays*) or corn silk have been introduced into medicine during the last

few years as a demulcent and diuretic in catarrhal inflammation of the bladder and kidneys. Its properties were made more widely known by Professor Castan, of Montpellier, in 1880. Different results have been obtained by different observers, the fluid extract of the drug appearing to vary in strength according to the nature of the soil, the climate, the time and mode of picking, and the manner of drying the stigmata. I have, however, found the fluid extract of Parke, Davis, and Co., of Detroit, as most constant and certain in its effects and action. In Mexico it has long been used in nephritic colic and vesical catarrh. According to Dr. Landrieux, under the action of this drug diuresis is rapidly produced. (This I found slightly in my first case and greatly in my second.) The pulse becomes regular; the arterial tension increases, and that of the veins diminishes. The drug is readily tolerated by the system, and in chronic cases its administration may be continued for a month or six weeks without the slightest inconvenience. No disturbing effect on the nervous system or digestive organs is experienced. Its chief value seems to be demulcent and diuretic in catarrhal affections of the kidneys and bladder, although anodyne properties have been claimed for it by M. Queriel, who observed that the pain was greatly relieved in nephritic colic after the use of the remedy. Professor Castan has used the infusion with success in many cases of gravel, and has found much relief in nephritic colic. He also considers it to act as a local anodyne. Dr. L. W. Hansen found in a case of chronic inflammation of the bladder, accompanied with hemorrhoidal troubles, that a wineglassful of a decoction of the fresh stigmata every three hours cured the disease in ten days, and that after nearly four months there was no return of the disease. Dr. Dufau states that in traumatic and gonorrhœal cystitis the drug acts markedly as a diuretic, but causes an increase of pain, and should not be employed in such cases. The best results obtained by him were in cases of uric or phosphatic gravel and chronic cystitis (whether simple or consecutive to gravel), and in mucous or muco-purulent catarrh. In such cases the vesical pains, dysuria, excretion of gravel, and ammoniacal odour disappeared under the use of the remedy. Cases are reported by Dr. Sassoon in *L'Union Médicale* in which the urine exhibited a strong ammoniacal, with heavy morbid deposits, which were speedily relieved by the application of corn silk. The stigmata maidis has also been employed with good results in cases of heart disease, albuminuria, and other affections requiring diuretics. In one case mentioned by M. Constantine Paul, the quantity of urine excreted after the administration of three teaspoonfuls of the syrup rose from 500 to 1,000 grammes. In another case, mentioned by Dr. Landrieux, that of a woman aged sixty-eight, suffering from heart disease, who had consider-

able oedema of the lower extremities, enormous ascites, pulmonary and renal congestion, the quantity of urine excreted was increased by the use of this remedy from 200 to 800 grammes in the course of twenty-four hours, and the oedema and ascites shortly disappeared. *Dose and preparations.*—An infusion is made with eight grains to a pint of boiling water, and a wine-glassful taken every two or three hours. A syrup seems to be in France, however, the favourite mode of administration. A kilogramme of syrup is made of such a strength that it contains 25 per cent. of the extract, of which the best samples of stigmata yield an average of $27\frac{1}{2}$ per cent. The dose of the syrup is two to four drachms, equivalent to one or two grains of the extract. I, however, prefer the fluid extract of Parke, Davis, and Co., of the strength of the fluid extract of the U. S. Pharm.—one gramme to the cubic centimetre; the dose of which is one drachm every six hours. (Mr. G. St. George, *Lancet*, Oct. 31, p. 798.)

[Mr. St. George narrates two cases of Cystitis in which the fluid extract of *Stigmata maidis* was administered with success.]

VARICOCELE. — *Treatment by Excision.* — The various methods adopted for the cure of varicocele go far to prove that, as yet, no one means is so thoroughly satisfactory as to leave nothing to be desired. Of the various measures I have myself adopted, I have found none to equal, in completeness and safety, the complete excision of the bundle of enlarged veins. After any radical operation for varicocele, there must of necessity be a greatly disturbed circulation in the scrotum, and a liability to hydrocele or slight orchitis, and this I have found occasionally even in subcutaneous ligature of the veins; but, as will be seen by the following cases, which have occurred in my practice during the last year, orchitis supervened only once, and then in a syphilitic subject, who had had specific orchitis a short time before being treated for varicocele. The train of nervous symptoms frequently accompanying varicocele is often so severe as to demand treatment; and, when some tangible cause is found, such as a varicose condition of the pampiniform plexus, producing congestion and neuralgia and ultimately atrophy of the testis, it is the surgeon's duty to give relief, especially when it can be done without danger. The operation of excision is performed as follows. The skin of the scrotum, having been shaved and well washed, is enveloped in a carbolic dressing, which is left on for twelve or twenty-four hours preceding operation. After the patient has been anæsthetised, and every antiseptic precaution adopted, the cord of the affected side is caught between the left finger and thumb over the site of the varicocele; the vas deferens, which is easily felt, is allowed to slip backwards, leaving the enlarged veins within the grasp. A vertical incision of three-quarters of an inch is now made through skin and

fascia, quite down to the veins which immediately bulge through the wound, and are caught between the finger and thumb of the right hand; the finger-nail then serves to break through a film of fascia which separates the veins from the vas deferens. A double No. 2 catgut ligature is passed round the bundle of veins, and the two ligatures thus placed *in situ* are tied about an inch or more apart, the intermediate varicocele being completely cut away. No bleeding occurs, as a rule, and the wound is so small, and falls so well together, that sutures are scarcely required. A small catgut drain may be left in, but this is not absolutely necessary. The wound is covered with carbolised gauze, and over this is placed a good pad of salicylic silk or wool. In some cases, the dressings are not removed for a week, when the wound is completely healed; but, when a drainage-tube has been left in, it should be removed on the second day. [Mr. Robson gives notes of ten cases in which excision was performed with success.] (Mr. Mayo Robson, Leeds, British Med. Journal, Feb. 27, p. 390.)

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC

ACUTE NECROSIS.—*Subperiosteal Resection for*.—At the Medical Society on February 8, Mr. Bernard Pitts read a paper on subperiosteal resection for acute necrosis, and exhibited a living specimen of the first case, which was that of a girl aged fifteen, who was admitted to St. Thomas's Hospital, on Nov. 25th, 1882, with swelling of the lower end of right tibia. For one week the swelling and pain had been present, and an incision was made above the ankle, a quantity of matter escaping. At the time of admission the girl was in a prostrate condition, with a temperature of 102° . The incision was freely enlarged and the limb placed on a Neville's splint. The patient steadily lost ground, and on Dec. 16th, or thirty-five days from the beginning of the disease, an operation was performed, in which the lower two-thirds of the tibia and ankle-joint were exposed. The lower half of the tibia was found to be necrosed, with separation at the lower epiphysial line; the epiphysis was almost entirely destroyed, a mere shell of bone representing the external malleolus remaining; the upper surface of the astragalus had lost its cartilage, and was granulating. There was a line of separation at the upper end of the necrosis; this fact decided Mr. Pitts to try to save the limb, which it was till then thought required amputation to save life. The tibia was sawn through a little above the line of demarcation, so that three-fifths of the tibia (measuring five inches and a half) were removed, the periosteum at the back of the bone being carefully preserved; it was felt to be roughened by the presence of a fine layer of

osseous granules; the surface of the astragalus was thoroughly scraped, and the epiphysial remains removed. Recovery proceeded rapidly, and on April 28th the patient left the hospital, the wound being healed, with the exception of two sinuses at the upper part. On June 23rd a small residual sequestrum was removed, and on August 21st a sinus of the foot was scraped. Since then the leg has remained perfectly sound. It is now in a very useful condition, with but slight deformity—shortening of three-quarters of an inch, and a tendency to varus, with increased mobility at the tarsal joint. Four years have elapsed since this case came under Mr. Pitts' care, so that he has had time to observe the ultimate result. The second case, a boy aged seven, had been under Sir William MacCormac's care from Oct. 11th, 1881. The disease was situate at the same site as in the previous case. An incision was made over the internal malleolus, which allowed the escape of some exudation. Twenty days after the first onset of symptoms Sir William detected separation at the epiphysis, and two inches and a half of the tibia were excised. Regeneration of the bone rapidly took place, and the patient was up on Dec. 23rd. Some months later Mr. Pitts saw the case, and there was but little shortening or deformity. Mr. Pitts said he divided cases of acute necrosis into five classes and indicated the treatment:—1. Acute necrosis of the entire shaft, with separation at the epiphyses, ought to be treated by removal of the dead shaft. 2. Where one or both joints were implicated also, early interference was more imperatively demanded, but in some cases amputation would be required. 3. For limited necrosis, time for complete separation of sequestrum might usually be given. 4. Acute necrosis of either end of a long bone was illustrated by the second of the cases related. 5. Of acute necrosis with total destruction of the epiphysis and involvement of the joint, the first case was an example, showing that the limb may sometimes be preserved. (*Lancet*, Feb. 13, p. 303.)

AMPUTATION AT THE KNEE-JOINT BY DISARTICULATION. — At the meeting of the Royal Medico-Chirurgical Society on Dec. 8th, Mr. Thomas Bryant read a paper on amputation at the knee-joint by disarticulation, with remarks on amputation of the leg by lateral flaps. The operation of removal of the leg by disarticulation at the knee-joint was first practised in England by Mr. S. Lane, and has been advocated by Messrs. G. D. Pollock, Pick, Stephen Smith, Markoe, Brinton, Staples, and the author. It is still regarded with some suspicion, and is not frequently resorted to, amputation through (or just above) the condyles being generally preferred. The operation by disarticulation requires for its success that the disease or injury should be confined to the leg, that the condyles of the femur be uninvolved or very slightly affected, and that there is a sufficiency of healthy soft

parts below the knee for the formation of a good flap. If these conditions be not present, some other method of amputation must be adopted. The author gave tables of thirty cases, with the results. Where there was no sloughing, no trouble was experienced with the articular cartilage on the condyles of the femur, and after healing the soft parts moved freely over the end of the femur. The cicatrix was always placed well behind the femur. The patella was preserved, its removal being found to be quite unnecessary. The steps of the operation, after three different methods, were then described—viz., that of Pollock by the long anterior flap, Pick's plan by lateral flaps, and Stephen Smith's method by lateral hooded flaps,—and illustrations of the steps of the latter operation accompanied the paper. The author endorsed completely the remarks of the American surgeon upon the value of his method of procedure, and strongly urged its application to cases of amputation in the leg also. The muscle substance was generally included in the flap in thin subjects, but not in others. The resultant stumps in the leg thereby obtained were excellent. The method of Stephen Smith for amputation at the knee-joint was to be preferred to either of the two other plans already mentioned, as it gave a better covering to the condyles of the femur, and the flaps were less prone to slough than was the long anterior flap of Pollock. One case in five of the former sloughed, and rather more than half of the latter class of cases. Smith's method also placed the cicatrix entirely behind the condyles, and out of the way of injury; whereas by Pick's method the cicatrix lay in the intercondyloid notch. Moreover, Smith's plan permitted no bagging of fluids, the stump being in the best position for drainage. The author advocated the leaving of the semilunar cartilages *in situ*, which he believed to be of great advantage to the case, the soft parts being thereby all held well in place and the fascial relations preserved. Dr. Brinton, as early as 1872, also advised this point of practice. Finally, the author summarised the advantages of this form of operation over amputation through the thigh in the following words;—1. The lessened shock of operation. 2. The lessened section of tissues, and the non-exposure of the muscular interspaces of the thigh. 3. The escape from the necessity of sawing the femur, with attendant risks. 4. The preservation of the attachments of the thigh muscles, and consequently the greater mobility of the stump. 5. The useful character of the resulting stump. (Lancet, Dec. 12, p. 1095.)

ANGULAR CURVATURE OF CERVICAL SPINE.—[At pages 225—230 will be found abstracts of important papers upon the treatment of this malady, by new appliances, intended to supersede the well known "Jury Mast" of Sayre. The jury mast, it appears, from the writers of the papers in question, even in the

hands of those of large experience in its application, has proved unsuccessful in a large number of cases. "To put the matter briefly," says Mr. Clark (p. 228), "if the support be effective it is not comfortable, and if comfortable it is not effective; and most surgeons who have used the jury mast have noticed that the patient still rests his chin upon his hands—a sure proof that the weight is not removed." Mr. Edmund Owen (p. 225) recommends a breastplate and chinpiece, and a dorsal plate and headpiece, made of "undressed" cow-hide. Mr. Walsham (p. 230) recommends an apparatus constructed upon much the same lines as Mr. Owen's, but made of poroplastic felt.]

Angular Curvature.—The Relative Advantages of Poroplastic and Plaster Jackets.—By some, felt is regarded as a mere makeshift for plaster, and, as we all know, is thought by Professor Sayre to be very inferior to it. At the meeting of the British Medical Association at Belfast, he raised many objections to its use, which, as far as I know, have gone forth to the profession, in the published accounts of the proceedings of the Association, hitherto unanswered. In the first place, Dr. Sayre says that porous felt fails to retain its shape, owing to the perspiration causing it to soften. To this it may be answered, that the resin which gives the necessary rigidity is insoluble in water, and only becomes softened and plastic at a temperature of 150° Fahr. In the second place, he says that, being formed over a plaster model, accuracy of fit is not so perfect as in the original jacket from which the model was made. Now, this would hold good were the felt jacket thus modelled placed on the patient in its rigid state; but it is applied with the felt thoroughly softened, and made plastic by steam, and then takes, I maintain, as accurate a shape of the parts as plaster-of-Paris. Thirdly, he contends that the porous felt, so-called, is not porous, but absolutely impervious to air, on account of the resinous gum in it; and, therefore, has frequently to be punched in holes before it becomes porous. This so weakens the corset, that it has to be fortified with strips of steel, which, of course, prevent its accuracy of adjustment to the various irregularities of the figure. But (says Professor Sayre), let a plaster-jacket be made over a tumbler or cup, and, when removed, its open extremities covered with plaster bandages, thus making an air-tight box; if, now, you cut a hole in the plaster and insert a cigar or pipe, and fill it with smoke, remove the pipe and insert a tight-fitting cork into the hole, you will observe that the smoke is seen to emerge from all portions of the plaster casing. This proves its porosity (said Professor Sayre), and makes it infinitely superior to felt, or to any of the various substitutes that have been suggested to take its place. But this experiment did not prove the non-porosity of felt. To have made his argument conclusive, he

ought, in like manner, to have filled a box of porous felt with smoke, and shown that, through it, the smoke would not issue. Mr. Cocking has made me such a box, which I now produce; and, having filled it with smoke, I leave it to you to say in what way the porosity of plaster is superior to that of the felt. But such an experiment is not necessary, as it must be well known to all who have used felt, that, if it is placed before the mouth, it can be breathed through, and the flame of a candle be visibly affected. Further, Mr. Cocking tells me that the porous felt is now being used as a material for respirators. But, as the felt is porous, it is not necessary to cut holes in it to render it so, and then to have to strengthen it by steel ribs. Indeed, I have used hundreds of jackets, and have never had occasion to do either. In conclusion, as I maintain that the felt is as porous, and can be made to fit as accurately, as plaster-of-Paris; its comparative lightness, greater cleanliness (both in application and in subsequent use), together with the great saving of the surgeon's time, render it, in my opinion, not a mere makeshift for plaster-of-Paris, but in every way superior to it. (Mr. W. J. Walsham, British Med. Journal, Oct. 31, p. 827.)

ANTISEPTIC DRESSING OF WOUNDS.—*Peroxide of Hydrogen.*—I have lately been trying a dressing less open, perhaps, to the suspicion of noxious effects. It is a solution of the peroxide of hydrogen, or oxygenated water, a preparation well known for its chemical efficacy, and manufactured in quantities for the purpose of bleaching hair. It is, I believe, absolutely non-irritating, and is very convenient in its application. A piece of absorbent cotton is dipped into the solution, squeezed over the wound as a wash, and then laid upon it as a dressing. Over this a piece of thin gutta-percha tissue or oil skin is laid, and covered with a layer of absorbent or salicylated cotton wool, and bandaged lightly. In deep sinuses and irregular wounds, it may be used with a syringe or irrigating apparatus and double tube. As a microbicide, the peroxide of hydrogen is one of the most powerful agents known. So small a proportion as one part in 2000 is efficacious in preventing the beginnings of putrefactive fermentation, and destroying the activity and propagation of bacteria and micrococci of all kinds. It is absolutely innocuous, and is quite free from any suspicion of local or constitutional irritation. Its active properties are due to oxygen in the form of ozone, an agent which is a normal constituent of the healthy blood, and upon the action of which has been founded a theory of the neutralisation of the bacteria present in the tissues of healthy animals, and the prevention of the propagation-changes which they may undergo, rendering them active agents of septic infection under certain conditions of the system, which a plentiful supply of ozone may remedy. It is, however, an unstable and easily de-

composed compound, prone to change by easily giving off its supercharge of nascent oxygen. This property is, in many conditions, certainly advantageous; the gaseous oxygen in the condition of change enters all the intricacies and pouches of a sinus, abscess, or joint-cavity, and thus effectually fulfils its antiseptic mission. It has, I believe, a decided and remarkable effect in diminishing and arresting the formation of pus-cells. For clearing suppurating joints, it may be used with great advantage. I have used it of the strength of 1 in 500, or even stronger, for this purpose, by means of an ordinary irrigation apparatus, provided with a double, or entrance and exit, tube. It can be carried in a concentrated form in a well stoppered blue bottle, kept from the light, and diluted with pure water to the required strength. Its weak point is its unstability; the ready escape of its effective gas renders it less applicable as a permanent dressing. If so used, it should be well covered with gutta-percha tissue, or associated with a more permanent nongaseous antiseptic, such as sulphate of copper, or chloride of zinc. It is not very costly, being made in large quantities for bleaching purposes, and may become cheaper in consequence of greater demand and easier supply. (Mr. John Wood, Bradshaw Lecturer, British Med. Journal, Dec. 19, p. 1148.)

CONGENITAL DISLOCATION OF HIP.—*Treatment.*—Whatever view may be held as to the cause of this obscure affection, which leads to such important consequences in after-life, we must decide upon the principles of treatment to be adopted. I have found in young children, and sometimes at later periods, that the head of the bone can be brought into what might be considered its natural position, by extension after the administration of ether, or gradually after the application of weight-extension. The great trochanter descends to its normal relations with the anterior superior spinous process, but the improvement gained is quickly lost, and no permanent good is attained. Subcutaneous tenotomy has been proposed, and the division of the tendons of the muscles inserted into the great trochanter has been adopted: but a consideration of the pathological conditions, as demonstrated here to-day, as well as my own clinical experience, has led me to oppose any such operation. Then, with regard to any advantage to be derived from mechanical supports, I have frequently seen children cased in steel, but have failed to observe any advantages derived therefrom. I have, therefore, abandoned all hope of producing any improvement in the actual condition of the parts at the hip-joint, and limit my endeavours to the diminution of the late consequences of this affection, more especially when one joint only is affected, to the prevention of tilting of the pelvis, and lateral curvature of the spine, which I have occasionally seen produced in a very severe form. In these

cases, I recommend the maintenance of the horizontal position, for at least half the day, during the period of active growth; and this should be combined with gymnastic exercises taken in the horizontal position, on the improved exercising plane, and also the use of the trapeze-bar. Any inequality in the length of the legs when this affection is limited to one hip-joint, must be compensated for by a raised boot. This, I believe, is all that can be done to prevent the consecutive deformities, and other consequences, which would certainly result if no preventive measures were employed. (Mr. Wm. Adams, p. 240.)

EXCISION OF HIP.—*Results.*—After a careful review of the most important mortality tables of hip-joint disease, Dr. Milton Yale, of New York, thus summarises his conclusions:—"If I have correctly apprehended the general import, it is this: that the mortality after resection of the hip-joint has materially diminished since the introduction of antiseptic precautions, and that the diminution corresponds very closely to the death-rate formerly chargeable immediately to the operation itself. Take the extensive tables of Culbertson; setting aside uncertain cases, he had a total death-rate of 44·84 per cent.; deducting deaths from operation—6·93 per cent.—we have 37·91 per cent., which is very nearly the same as Grosch's—36·7 per cent. for 120 complete cases under antiseptic treatment. In other words, asepsis has almost abolished the risks from wound complications, and the death-rate is reduced very nearly to that from the uninterrupted disease when the operation has failed to arrest it. And, as it has been shown that, in cases that heal, the period of healing is shorter than when antiseptics are not used, the danger of amyloid changes may be slightly lessened. Thus much has been gained by perfect antisepsis: in weighing the chances in any given case, we need no longer put much stress on the dangers of the operation itself, except, perhaps, the one element of shock, which the prolonged extirpation of diseased and suspected tissues, necessitated by the thoroughness of modern surgery, sometimes favors. It seems, then, fair to say that whenever the disease in its natural course assumes an aspect threatening to life, resection is indicated, provided none of the less radical operations—drainage, gouging, etc.—can remove the danger. As Grosch points out, tuberculosis is still the commonest cause of death. König maintains, as a result of a large experience in excision of all kinds—117 in three years and a half—that the hope for immunity from tubercular infection has not been gained by antiseptic resection. Of 25 deaths after his operations, 18 were from tuberculosis, and in addition nine patients, not yet dead, were hopelessly tuberculous; in all, 21·5 per cent. of his cases, and of 21 hip excisions, 10—47·6 per cent.—died of tuberculosis in four years. In the debate on König's

paper some disagreement with his views was expressed, but Esmarch essentially confirmed them. Caumont distinctly states that he found no preventive effect in his cases. Of 26 cases of scrofulous origin treated by expectancy, he lost 5—rather less than one fifth—from tubercular disease; of 12 resected, he lost 4, or one third. Others may have had better results, but the prophylactic effect cannot be very decided if such marked exceptions occur.” (Dr. L. Milton Yale, New York, p. 237.)

FLAT FOOT.—*Its Causes and Treatment.*—*Astragaloid Osteotomy.*

—Professor Stokes, of Dublin, concludes an article and narrative of a case (see p. 245) with the following propositions:—1. That the theory of ligamentous relaxation being the chief factor in the production of flat-foot is erroneous, being in the majority of cases the result and not the cause of that deformity. 2. That elongation of the calcaneo-scaphoid ligament should not be mistaken, as it so often is, for relaxation of it. 3. That the altered direction of the sustentaculum tali is a change that could not be directly or indirectly connected with either ligamentous relaxation or muscular paralysis. 4. That the osseous deformation, whether resulting from original malformation, or rickets, or other pathological change in genu valgum—a condition until quite recently believed to depend solely on ligamentous relaxation—furnishes an *à priori* argument in favour of the author's theory. 5. That the treatment of pes planus, in cases, at all events, where the deformity is irreducible, should be directed mainly to restoring the arch of the foot by operative interference with the misshapen astragalus. 6. That this is feasible without destruction of the medio-tarsal joint. 7. That the evidence in favour of muscular paralysis being an ætiological movement in the production of flat-foot is insufficient and unsatisfactory. 8. That deformity of the scaphoid, the result of disease, may also be looked upon as a cause of flat-foot. 9. That the appearances in the specimens noted by Mr. Symington and the author furnish strong proof of the truth of the connexion between flat-foot and original osseous malformation. 10. That after astragaloid osteotomy it is desirable to keep the foot, during the healing of the wound, in a state of supination, which can be conveniently effected by the application of a Dupuytren's splint, as used in fractured fibula. (Annals of Surgery, Oct., p. 284.)

FRACTURES OF THE ARM, WITH INJURY TO NERVES.—Mr.

Thomas Jones, of Manchester, in commenting upon the case of a boy who had sustained a compound fracture of the humerus, in which the musculo-spiral nerve suffered injury, in which an operation was performed for restoration of its function with complete success, says:—“A perusal of recorded cases makes it appear that in many instances the musculo-spiral nerve escapes

with a contusion, the effects of which disappear after the lapse of some time, which varies with the degree of injury. In these cases the paralysis is transient, and never as complete as when the nerve injury is more severe and lasting. The severe cases will require careful attention, and if it is found that, notwithstanding the systematic application of electricity, no improvement takes place within a reasonable period, then it becomes necessary seriously to consider the propriety of exposing the nerve with a view of removing the cause of the paralysis. One word of caution might very properly be uttered here: it is to direct enquiries in all cases of fracture of the humerus, in order to ascertain the condition of the musculo-spiral and other nerves. Paralysis from contusion of a nerve may, therefore, be recognised by its immediate or early appearance, by its rarely presenting any exacerbation, and always showing a tendency to recovery, which is often ushered in by tingling or other abnormal sensations. In this form of paralysis no operation will be required; the steady employment of electricity, if continued for a sufficient length of time, will effect a cure. When, however, the paralysis is consequent upon compression of the nerve by one or other of the fragments, or its inclusion in the callus, or when it is due to avulsion of its fibres, then we must adopt means by which it may be set free, otherwise the paralysis will become permanent." (Medical Chronicle, Oct., p. 10.)

FRACTURE OF CONDYLES OF HUMERUS. — At the New York Academy of Medicine, on Dec. 3, 1885, Dr. Samuel W. Smith, in the course of a paper entitled, "Original deductions based on a study of one hundred cases of fracture of the upper extremity, excluding the hand," said that in fractures of the condyles of the humerus, he was convinced that the active combating of the inflammation usually manifested in the joint, is the only safeguard against ankylosis. When only one of the condyles is implicated, the ordinary anterior splint is generally efficient; but when the fracture involves both condyles, constituting what is known as a T fracture, he has found the usual methods of treatment quite inadequate. A varied experience, full of disappointments, in the use of the known splints in the more severe fractures of the condyles, had set him to work to make a splint with the following requisites:—1. To hold the fragments firmly in apposition. 2. To allow the forearm to be flexed and extended, pronated, and supinated. 3. To lengthen or lessen the external lateral angle of the arm with fixation. 4. To leave the entire elbow exposed for the purpose of making local applications during the whole time of wearing the splint, without disturbing the latter. Such a splint he had accordingly devised, and he now exhibited it, consisting of two rods of untempered steel, with ball-and-socket joint, and fixation screws at the elbow and wrist; the rods being

secured to the arm and forearm by means of plaster-of-Paris bandages. It had long been a mooted point among surgeons, he said, how soon passive motion of the joint should be commenced; some claiming that this should be at the end of a week, and others, not for three or four weeks. For his own part, he thought that the character of the injury in any given case should regulate the time for beginning passive motion. (Phil. Medical News, Dec. 12, p. 663.)

FRACTURE OF THE THIGH IN CHILDREN.—*Treatment by means of the "Steadle Splint."*—By the steadle splint, or crib-splint, is meant the using a steadle, bedstead, or crib, for the purposes of a splint, namely, for extension and counter-extension; and any further appliance for setting, or coaptation, may be omitted, with good results. One method of using it which answers very well is this. From an ordinary bandage, cut such a length as, when folded in the middle, will reach from the lower ribs of the child beyond the top cross-piece, forming part of the framework upon which the mattress rests; whether it be the framework of an iron bedstead, of a crib, or of an old wooden steadle. Take two such lengths, and lay them singly, not doubled, along the sides of the child's chest; and pass round the chest, under the arm-pits, and over the bandage-lengths, an ordinary rib-roller. On bringing up on the outside of the roller the other ends of the bandage-lengths, there is on each side of the chest a loop of bandage, with the rib-roller lying in the loop. Let the upper and the under portion of bandage be secured separately by thread or safety-pins to the upper edge of the rib-roller, and at such points that the under part goes under the shoulder, and the outer part over the shoulder, without dragging. Adjust the child's head and pillow, and fasten the bandage-lengths to the top cross-piece, which forms part of the framework upon which the mattress rests. And one has only to raise the feet of the bedstead upon bricks, when the arrangements for counter-extension are complete. Cover the ankle thickly with wadding, and, having taken a loop-length of bandage, long enough to reach from the angle, beyond the bottom cross-piece, forming part of framework which supports the mattress, tie the bandage round the ankle, with the knot at the back, above the heel; make extension, and secure to the bottom cross-piece. All that remains is to keep the foot in position by means of bandage-lengths passing round the foot, and fastened to the side-pieces of the frame work; and the thigh is set. The main use of such a plan as this is that, in whatever out-of-the-way house one finds a child with a broken thigh, there, also, is the steadle-splint. But, besides, the following points might be mentioned in its favour. 1. It avoids all the trouble consequent upon perineal bands in children. 2. The counter-extending bands over the shoulder check both forward

and turning over movements during sleep, as well as when awake. 3. In permitting the omission of special setting splints, and all bandaging, it adds to the comfort at the time and throughout the treatment. (Mr. S. Wilson Hope, Petworth, British Medical Journal, Nov. 21, p. 963.)

GUNSHOT WOUNDS OF KNEE.—Sir William MacCormac comments as follows upon two successful cases, published in detail in the *Lancet*, Feb. 27th, 1886, p. 389:—"The two cases recorded are striking from the similarity of the injury in each. The bullets causing the damage were almost alike in size, although one was discharged from a rifle and the other at close quarters from a pistol. The ball traversed the expanded portion of the condyles transversely, in both cases from within outwards, in each instance very near to the articular surface, lodging in the bone in both, and in both remaining undiscovered for a considerable time. In both, too, there were symptoms of inflammation in the knee-joint, some pain, fever, swelling, and subsequent stiffness, which passed off. It is difficult to believe that in either the injury could have been wholly extra-articular. Conical bullets such as these, and capable of penetrating the bone to so considerable a depth, would be very likely to cause fissures which would almost certainly extend to the joint surface, while the continued presence of the foreign body could scarcely fail, one would suppose, to excite articular mischief. Nevertheless, in neither of these two cases has any permanent ill result followed, and the function of the joint is in both perfectly restored. There is a strong presumption, without, I admit, any positive proof, that the knee-joint was implicated to a greater or less degree in each of these cases, yet recovery has ensued with a freely movable articulation, and certainly without in either case any special advantage in regard to treatment. Perhaps, after all, a gunshot injury of the knee may not be always so disastrous as it was at one time assumed to be. Langenbeck told me he had met with at least one hundred cases of penetrating wound of the knee-joint followed by recovery during the Franco-German war. Many cases of recovery after a bullet had traversed the joint and fractured the bones are recorded by the Surgeon-General of the United States Army; and then there are the remarkable results published by Bergmann and Reyher obtained after antiseptic occlusion in the Russo-Turkish and other campaigns. During the American war, 338 cases of unmistakable fracture involving the bones of the knee-joint made good recoveries after an altogether expectant plan of treatment—that is, both life and limb were preserved. Many of the cases, beside the one which I have first quoted, are most remarkable, but for the details I must refer to the Surgeon-General's report. A conservative treatment, whenever it is possible to adopt it,

is probably by far the most promising one for gunshot injury of the knee-joint, and it has proved the most successful, especially in recent campaigns. Excision of the knee for gunshot injury in time of war has hitherto been disastrous, while amputation has been very fatal also." (Lancet, Feb. 27, p. 389.)

MALFORMATION OF JOINTS CONSEQUENT UPON SYPHILITIC PERIOSTITIS IN INFANCY.—Singular and very deceptive malformations of joints are sometimes produced by the irregular overgrowth of long bones in congenital syphilis. They are sometimes helped by alterations in the epiphysal extremities, due to the same cause. Many years ago, I had under my care, in the London Hospital, a girl aged about 6, who had large nodes on both her femora, and was unquestionably the subject of inherited syphilis. The forms of her elbows were altered in such a way that the end of the radius was displaced upwards in the external condyle, and simulated a partial dislocation. We were doubtful whether or not it was a congenital condition, but I was more inclined to refer it to influences mentioned, and to think that the radius was overgrown. Some facts subsequently supplied to me by Mr. W. E. Hacon, of Upper Holloway, gave support to this opinion. Mr. Hacon's patient was a girl aged 14, the subject of specific disease, who had formerly suffered from keratitis and multiple nodes. One elbow looked exactly as if the radius were dislocated forwards, "but, on more careful examination, it was certain there was no dislocation, and that the deformity was owing to flattening of the external condyle." There was such alteration in form of the lower epiphysis that, in measuring across the back of the joint, from one condyle to the other, there was the difference of nearly an inch in favour of the affected side. Thus the external condyle projected much more than the internal one (contrary, of course, to what is normal). Mr. Hacon told me he had seen two somewhat similar cases. The deformity is probably due to overgrowth of some parts of the epiphysis itself, just as we get overgrowth of long bones, under similar circumstances, as the result of lasting syphilitic inflammation. (Prof. J. Hutchinson, British Med. Journal, Feb. 6, p. 242.)

PRIMARY AMPUTATIONS.—*Re-infusion of Blood in.*—In an important article, Dr. John Duncan, of Edinburgh, advocates the re-infusion of blood which escapes during the performance of primary amputations, into the main vein divided in the stump. The dominant idea in the procedure, says the author, is to utilise the blood flowing from the amputated limb, which otherwise must necessarily be lost. The escaping blood was allowed to fall into a solution of phosphate of soda, as recommended by Dr. Pavy, to prevent coagulation. The further steps in the procedure are

thus detailed by Dr. Duncan:—"An operation of this kind plainly requires attention to detail, but its extreme simplicity renders easy the avoidance of mistakes, some of which I committed in the earlier instances. I attach much importance to the perfect fluidity of the blood, and the aseptic condition of all the instruments. In no case had our patients the slightest fever, rigor, or disturbance of any sort, subsequent to the operation. Glass was purified by prolonged immersion in a solution of bichloride of mercury, metal in carbolic acid. For introduction into the vein of the receiver, I use a short glass tube, of the size of a No. 6 catheter, having a pen-shaped point. To its other end, made slightly bulbous, about two inches of india-rubber tubing is attached. A simple glass syringe, holding four ounces, whose nozzle fits the tubing, is perfectly effective. I keep up the temperature by surrounding it with boric lint, wrung out of hot water. A syringe which I had made with an outer glass envelope to hold warm water, I find very cumbrous. A graduated glass vessel, kept floating in warm water, contains the solution of phosphate of soda, and receives the blood. All are washed with aseptic water after removal from the antiseptic solution, and before being used. In amputations, the most convenient vein is selected on the face of the stump, the glass point is inserted, and a catgut ligature put round it. While the process of ligaturing the arteries is going on, the blood is caught by one assistant, who adds the soda-solution as required, and is slowly injected by another. There is no time wasted, and the amount put into the circulation is precisely proportioned to what the patient would otherwise have lost, *plus* what amount of saline solution the surgeon may think right and appropriate to the case." (Dr. John Duncan, p. 221.)

SARCOMA OF BONES AFTER INJURY.—At the Medical Society of London, on November 23, 1885, Mr. A. Pearce Gould read a paper on the development of sarcoma shortly after injury, founded on three cases recently observed. The first was that of a girl, aged 16, who, three months after she had struck her forearm, noticed a swelling of the upper end of the radius, which enlarged rapidly under observation till it involved the upper third of the bone. Puncture of a fluctuating area with an aspirating needle resulted in the withdrawal of some bloody fluid. The patient made a good recovery. The tumour was found to consist in great part of a large blood-cyst. On microscopic examination, its structure was seen to be that of a myeloid sarcoma. The second case occurred in a woman, aged 26, who, three months previously, had struck her thigh. Two months later, a swelling was apparent and steadily increased, so that, when first seen, the whole bone was involved, and the tumour had attained a large size. The tumour was situated on the outer

side of the bone, but, on section, was seen to extend into the medullary canal. It contained several blood-cysts, and was in part ossified. The limb was amputated by a modification of Mr. Furneaux Jordan's method. Soon after amputation of the thigh, recurrence of the growth occurred in the groin. The secondary tumour was excised, but the disease had recurred in the stump. The third patient was a man, aged 70, who, on Oct. 29th, 1884, struck his arm and elbow. He was admitted into the Hackney Infirmary, and treated for contusion. On November 18th, he was discharged, but was readmitted in February on account of pain and swelling of the arm. The humerus was greatly enlarged and broken. It was put up in splints; but the swelling rapidly increased, and the limb was amputated. Mr. Gould quoted a considerable number of cases where sarcoma appeared soon after injury, recorded by various writers. It was important, he said, to class separately those cases in which growths followed, not after repeated slight injuries (irritation), but a single injury. He confined his remarks to the first class of cases, and observed, in the first place, that the relation between the injury and the growth was not accidental, though the injury itself was not the all-sufficing cause. To state that the patients were predisposed to the growth of such tumour did not account for the fact that such patients had previously received many injuries—perhaps in the very same part—without the development of a tumour. The cases occurred most frequently between twenty and forty years of age, an age when injury was most frequent, and in those bones which were most exposed to injury. (*British Med. Journal*, Nov. 28, p. 1019.)

SEPARATION OF EPIPHYSIS OF METOCARPAL BONE OF THUMB.—The injury resembles dislocation of the base of the metacarpal bone, and I can imagine that it might be very readily overlooked, especially by such as may have become oblivious to the exceptional arrangement of ossific centres, which distinguishes this metacarpal bone from its fellows and brings it into alliance with the phalanges. There can be little doubt that several cases reported as fracture of the head of some one of the other metacarpal bones were, in reality, cases of separation of the epiphysis. It may be of little moment as regards treatment of these small bones whether the case be thought one of dislocation, fracture, or separation of the epiphysis; but an inexact diagnosis is never satisfactory, and it should be the aim of every surgeon to gain as explicit an understanding of his cases as a careful and complete examination will allow him to secure. (*Mr. Clement Lucas*, p. 233.)

SPRAINS OF THE ELBOW IN YOUNG CHILDREN.—[In the August number of the *Annals of Surgery*, Mr. J. Hutchinson, junior, describes a hitherto unmentioned lesion of the elbow. Imitating

in experiments upon the dead subject, the movements which appear to generally cause an injury, very common in young children, the author found on dissection that the orbicular ligament of the superior radio-ulnar articulation had been displaced upwards, over the head of the radius, and had become interlocked, as it were, between the articular surfaces of the radio-humeral joint, somewhat after the manner of the displaced semilunar cartilage of the knee. The accident is commonly produced by a dragging or other force applied to the hand in a condition of supination. The treatment consists in flexing the elbow and then gently but fully pronating; "if a click is audible, one may feel certain that the orbicular ligament has descended, and that nothing further is necessary than rest, with perhaps cold applications." Mr. Hutchinson also makes some interesting remarks upon the possible causal relation of this injury, which he says is very common, to destructive disease of the elbow joint.] (Mr. J. Hutchinson, jun., p. 251.)

SUTURES.—*A Modification of the Continuous Suture.*—Dr. Zesas (Centralblatt f. Chirurgie, Sept. 26, 1885) has introduced an

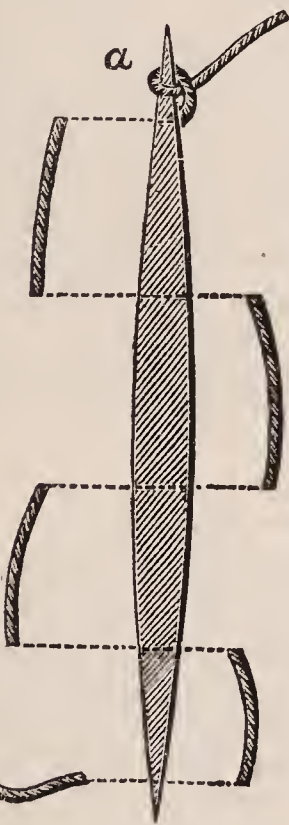


Fig. 1.



Fig. 2.

excellent modification of the continuous suture. He uses a straight three-edged needle, and, as a suture material, sublimate silk. He begins at one end of the wound by a button suture (*a*), and then applies a quilt suture (*Matratzennaht*) the whole length of the incision, as shown in Figure 1. The wound edges are now drawn together, and the thread carried back to the point (*a*) by means of the ordinary continuous suture, as shown in Fig. 2.

By this suture more than the mere edges of the wound are brought together, and bagging of inflammatory material is almost entirely prevented. Dr. Zesas has used this suture in a large series of wounds, and speaks in very high praise of it. (American Jour. Med. Sciences, Jan.)

UNGUAL EXOSTOSIS.—*Method of Removal.*—The operation may be performed in two ways, according as the nail with its matrix is removed or not. (a) If the matrix is in a fairly healthy condition, there is, of course, no need to take it away. Under these circumstances a curved incision should be carried transversely round the end of the toe, and a flap, including all the tissues that lie beneath the phalanx, turned downwards almost as far as its base. With a pair of bone-nippers the phalanx should then be cut transversely across, about its middle, from below upwards, and the distal half, along with the growth, dissected out. The plantar flap is then allowed to fall back into position and secured by a few sutures. (b) If the matrix is much disorganised, it is, I think, always advisable to remove it and the nail along with the growth. Under these circumstances, the plan, which I have on several occasions adopted with excellent results, is to carry an incision all round the nail about one-eighth of an inch from its margins. The posterior part of the incision, *i.e.*, that behind the root of the nail, is carried down to the bone. A pair of bone-nippers is introduced into this portion of the wound, and the phalanx is divided about its middle from above downwards and forwards. Its distal half, along with the growth, matrix, and superjacent nail, are then dissected away. This having been done, the distal end of the incision (*i.e.*, that beyond the free edge of the nail) is turned upwards and backwards, and brought into apposition with the proximal margin (*i.e.*, that behind the root of the nail), where it is secured by a few sutures, drainage being provided for by the introduction of a small tube or a skein of horsehair laid transversely across the wound. In most cases union rapidly takes place, and, as above stated, the result is all that can be desired. (Mr. F. A. Southam, *Medical Chronicle*, Feb., p. 384.)

AFFECTIONS OF THE SKIN, ETC.

ARSENICAL BRONZING OF THE SKIN.—There is, however, one effect of the continued administration of full doses of arsenic to which I would call special attention, because it is inconvenient, and because I believe it has not been previously recorded—and that is, discoloration of the skin, arsenical bronzing. I have observed it in four cases. The discoloration in the most extreme form closely resembles that met with in the lighter staining of Addison's disease;—a distinct mottled bronzing, most intense in the axillæ, the groins, the flexures of the thighs, and under the knees, but very marked also on the neck, the abdomen, and the small of the back, not in patches, but fading gradually away on the chest and extremities, and not affecting the face. I have a patient now under my private care thus changed, temporarily,

into a gipsy. Three months ago the bronzing was so great as to be cause of some alarm, and some carping by the parents; but when I saw the patient a few days ago it had sensibly faded, and will, I have no doubt, gradually disappear. In two of the other cases the staining has entirely gone. In one of these (*Case 3*) it was very deep and general. Now, six months later, he is free. I have seen one case in which discoloration was permanent; a woman who came under my care years ago, and who had been under treatment by large doses of arsenic for some two years, prescribed for the cure of alopecia areata by a well-known dermatologist of the time. She was under my observation for seven or eight years, and she remained brown as ever until the time of her death. (Dr. W. B. Cheadle, p. 174.)

ACNE.—Unna strongly recommends the preliminary levelling of all pimples by means of the sharp spoon, and the emptying of the comedones by pressing with a watchkey-like instrument (made by Weinberg, of Hamburg) in the direction of the hair follicles. This rubbing down of the skin, which removes the horny tops from the follicles and opens the pimples, may be continued at home by the patients themselves by scouring the affected surface gently with a wet rag dipped into powdered marble. Instead of the ordinary sulphur preparations, he recommends an ichthyol paste—*R.* Ammon. sulphoichthyol 3·0 = 45min.; aq. dest., glycerini, dextrini, āā 10·0 = $\frac{1}{3}$ oz., *M. leni calore*. This is to be applied overnight, washed off in the morning with hot water and soap, and followed with a $\frac{1}{4}$ per cent. sublimate lotion, thickened with a little gum, glycerine, and oxide of zinc. (Dr. H. G. Brooke's Abstract in Med. Chronicle, March, p. 515.)

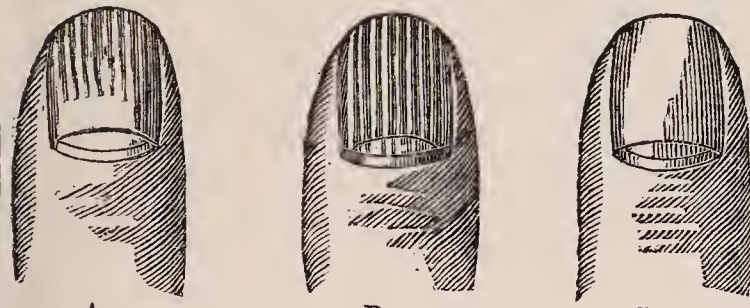
Acne Rosacea.—*Ichthyol.*—For this affection also, Unna strongly recommends ichthyol, not only externally, but as a medicine. The dose may be gradually increased from 15 to 50 drops, taken in water. (I have found the drug too nauseous to take in this way, and have been compelled to give it rubbed up with gum tragacanth and concealed in gelatine capsules.) It may also be used locally in the form of a soap. The water which is applied to the face should always be hot, and the face should be bathed with thoroughly hot water after every meal. If the rosacea tends more to an eczematous than an acneid type, lead or zinc salves and powder should be substituted for the ichthyol and sublimate preparations. (*Ibid*, p. 516.)

FRECKLES.—Heitzmann recommended Wertheim's ointment:—Ung. hg. ammon., 3·75; bismuthi subnit., 3·5; ung. glycerini, 30·00, to be applied every other night. Hardaway had found that dotting the patches with a stiff electrolytic needle was a good plan of removing the pigment. (*Ibid*, p. 518.)

FURUNCULOSIS.—In furuncles, carbuncles, abscesses, panaritia, phlegmons, and all the suppurative processes which depend on the presence of certain micrococci, the best of all remedies is a plaster containing quicksilver and carbolic acid. Applied to these processes in their earliest stage it causes their rapid subsidence, and in the later stages it so materially diminishes their extent and severity as to render an incision unnecessary. A poultice applied over the plaster may be of advantage, and a slight opening, if the abscess be pointing; otherwise the process is best left entirely to the working of the plaster. In the case of furunculosis of hairy parts, such as the head and axilla, or with very extensive carbuncles, where the plaster cannot be applied, the use of a 10°/o ichthyol salve makes a good substitute. The best internal medicament in all such cases is calcium sulphide. (Ibid, p. 516.)

GOUTY FINGER (CHRONIC).—A valuable suggestion by Dr. Illingworth (Lancet, October 13th, 1883), on the application of a light splint to the back of a finger afflicted with whitlow, made me think that the same plan would be helpful to any finger in which the acute effervescence of the gouty paroxysm had passed away, leaving a chronic œdema or thickening, or small ulcers with “chalky substance” lying in them. These little ulcers are slow to heal; rude stimulating applications provoke them to anger; poultices and compresses keep them in a sodden lazy state, antagonistic to all healthy action. Side by side with the ulcers are often petty nodules of gouty concretion, pale or purple, and likely to inflame, if injured, by any of the traumatic chances of daily life. Now, to keep the finger at rest and in seclusion is to keep it away from harm, to quiet local heat, and to help local repair. Make a paper splint with mucilage of acacia, mould it while moist to the front of the finger, wrapping it a little around the nail, and retain it in position by a few turns of very narrow plaster over all, with a light muslin protection, like the loose finger of a glove, allowing free access of air; remove the splint night and morning for the sake of cleanliness; and apply a new splint every three or four days. The exceeding comfort of this plan is best appreciated by those who have tried and enjoyed it. By keeping the finger always straight, an obstacle to the healing of the gouty ulcers is at once removed; inflammation is subdued, and other awkward contingencies are prevented. The little useless member is interred for its own benefit, instead of dangling about and frustrating the offices of its comrades. The fetters may be taken off in due time; gentle friction restores disused tendons and muscles; and the finger will again assume its place in the honourable society of digits to perform its functions until the next attack of gout lays it low. (Dr. J. Kent Spender, British Medical Journal, Feb. 13, p. 295.)

GOUTY NAILS. — Sir Charles Scudamore long ago observed a peculiar hardness or brittleness of the nails of the gouty, so that it was difficult to keep them well trimmed. After some attention to the subject, I have come to the conclusion that the nails in gouty persons soon lose their smoothness, and become 'reedy' or striated, showing the individual hairs of which the nail is built up. The photograph before you shows a 'reedy' nail from a lady who is gouty (A.) The others (B and C) have an interest-



ing history. A gentleman consulted me a year ago about his gout, for which I prescribed. After being put upon treatment, he observed the change in his nails. They lost their

roughness and their reediness. and grew perfectly smooth. When just half-way grown, the distal half being 'reedy,' while the proximal end was quite smooth, I had the thumb-nail photographed; and the difference is at once obvious. Later on, when the new nails were fully grown, another photograph (C) of the same nail was taken, and it will at once be seen that the nail is smooth and normal, and has lost its gouty characteristics. Not having a photograph of the nail (A) before the anti-gout treatment was adopted, a thumb-nail of a person of like age, and bearing a very close resemblance to it, has been taken in its place. (Dr. J. Milner Fothergill, *Lancet*, Nov. 7, p. 847.)

LUPUS.—The treatment of lupus consists not merely in attempting to kill the parasite by direct applications (*e.g.*, sublimate solutions), but in trying at the same time to render the tissues unfit for its nourishment. To do this most effectually, a preliminary scraping out of the lupus tissue is necessary, followed by the energetic use of sticks of nitrate of silver, zinc chloride, or sublimate, or by concentrated solutions of pyrogallic acid. However thoroughly this may be done, much of the diseased growth is left along the course of the vessels in the parts round about which were solid enough to resist the spoon. In order to attack these, pure ichthyol salts may be painted on two or three times daily, or the wounds may be covered with a ten to twenty per cent. pyrogallic acid salve, or with plasters containing arsenic and quicksilver, or salicylic acid and quicksilver, or pyrogallic acid, salicylic acid, salicylic acid and iodoform, iodoform alone, iodide of lead, quicksilver, and carbolic acid. If the little operation is impossible, the skin may be thinned before putting on these preparations by previously applying a salicylic acid plaster. Scarifications are but of little service, and may cause

auto-inoculation; the same objection also holds against puncturing. If, however, nothing else is possible, the tubercles may be injected with solutions of ichthyol (50°/o), of pyrogallic acid (10°/o), of caustic potash (2-5°/o), &c. (Dr. H. G. Brooke's Abstract in Med. Chronicle, March, p. 516.)

LANOLIN.—*Formulae for Its Use in Skin and other Affections.*—

1. Argenti nitratis partem 1; lanolini partes 9. This ointment is somewhat solid; good to be spread on charpie.
2. Cerussæ partes 30; adipis 10; lanolini 60.
3. Emplastri plumbi simplicis partes 50; olei olivarum 20; lanolini 30. This salve appears solid, but becomes pliant as soon as brought into contact with the skin. In eczema, it should be heated until the water has evaporated.
4. Emplastri plumbi simplicis, lanolini partes æq. As an ointment, this form is too solid, but useful as a plaster.
5. Hydrarg. præcip. albi partes 10; adipis 10; lanolini 80.
6. Hydrarg. oxydati partes 10; lanolini 90. When used as an eye-salve, add 30 per cent. of fat.
7. Liquoris plumbi subacet. partes 8; adipis 10; lanolini 80.
8. Zinci oxydi partes 10; adipis 10; lanolini 80.
9. Cinnabar partes 10; adipis 10; lanolini 80.
10. Hydrargyri partes 50; lanolini 12; unguenti hydrarg. cinerei 25; sebi ovilli 25; lanolini 87.5 (Dr. Dieterich.)
11. Potassii iod. partes 20; aquæ 10; adipis 20; lanolini 150.
12. Cetacei partes 10; olei olivarum 30; lanolini 40; aquæ rosarum 50.
13. Iodoformi partes 10; adipis 10; lanolini 80.
14. Chrysarobini partes 10 and 20; adipis 10; lanolini 80.
15. Picis liquidi partes 20; lanolini 80.
16. Balsami Peruviani partes 10; olei terebinth. 20; lanolini 70.
17. Acidi boracici partes 10; adipis 20; lanolini 70.
18. Acidi carbolicus 5; adipis 5; lanolini 90.
19. Acidi salicylici partes 10; adipis 20; lanolini 70.
20. Naphthol partes 5; adipis 10; lanolini 85.
21. Lanolini, butyri cacao, āā partes 50; adipis suilli 5; olei rosarum gr. iij: a hair pomade. (Dr. Oscar Liebreich, p. 328.)

NÆVUS.—*An Improvement in its Treatment by Sodium Ethylate.*—

In the treatment of nævus by sodium ethylate much time may be lost in waiting for the removal of the crust which is formed after the ethylate has been applied. While waiting for the loosening of the crust it often happens that the nævus undergoes fresh growth beneath, exhibiting a very red and irritable surface after the crust is removed for reapplication of the ethylate. In order to prevent these difficulties, I have modified the plan of operation in a way which, in two cases, has proved most successful. The modification is as follows:—Over the nævus at the

first application I apply the ethylate very freely, adding a second layer of it when all the watery oozing has ceased. This causes in three days an extremely firm crust. On the third day, while the crust is still firm, instead of removing it, I puncture through it in three or more places with a sharply edged small flat needle, and with the needle I break up the vascular surface beneath freely. On withdrawing the needle a few drops of blood exude from the needle points, which blood I take up with cotton wool, pressing firmly so as to empty the surface entirely of blood. Then I apply over the whole surface a little ethylate, and do no more for four days. At the end of that time, if, on pressing the crust, there is evidence still of fluid underneath it, I once more insert the needle and treat as before, but if the scale be flat and firm, I let it remain until it falls off of itself and leaves an even and healthy surface. In the diagram there is figured the kind of



needle used. The needle is fixed in a light bone handle, at the other end of which there is a steel loop or scoop for loosening and removing the crust if that operation be required. (Dr. B. W. Richardson, *Asclepiad*, July, p. 253.)

PITYRIASIS VERSICOLOR.—*Treatment by Pumice Stone.*—Of the numerous remedies proposed for the cure of this affection, such as the lotions of nitric acid, of sulphur, and of borax, the pomades of mercury and tar, none rivals a soap made from pumice-stone in destroying the *microsporon*. The action of the alkali contained in the soap upon the skin, together with the mechanical effect of the powder of pumice-stone, is certain to produce the desired result. Prolonged frictions should be made morning and night, with soap prepared according to the following (Vigier's) formula:—Black soap, ℥. ij; pumice-stone, ℥. ss. Mix carefully. (M. Vigier, *Practitioner*, Jan. p. 62.)

PORT WINE MARK.—(NÆVUS VINOSUS.)—Our only method of treating the port wine stain is by means of external irritants. When it exists on parts of the body not exposed to view, it is better to leave it alone altogether. On the face it is so unsightly that an effort should be made to cure it. Unfortunately it cannot be said that our efforts are very likely to be successful. At one time I was inclined to give up the attempt, after trying multiple puncture, simple and with the cautery, Squire's multiple knife, and many other things. But as they so rarely disappear of themselves, and as I have latterly with persistence obtained

somewhat better results, I believe we ought at least to give treatment a fair trial. It will require much patience, however, on the part both of patient and surgeon. Much time and care must be expended on them. The difficulty is to bring about a cure without destroying also the skin in which they reside, and so leaving a mark at least as disfiguring as the nævus itself. So far as I can see, our only chance is to bring about a dermatitis severe enough to lead to obliteration of the vessels, but not to produce ulceration. One attack of dermatitis, moreover, is rarely successful, unless the nævus be very small and pale. We have to repeat it over and over again through a period of many months; but looking to the effects of long continued frictional irritation, I have been encouraged to persevere, and, in some cases, have met with success. I have tried brushing with strong nitric acid, repeated blistering, iodine, perchloride of iron, and strong mercurial inunction. On the whole, I should say that iodine made the best application. The liniment, or the Edinburgh tincture, should be used and carried to strong irritation, to be repeated again and again as the cuticle peels off. The objection is the discoloration, so long continued and so conspicuous; but it is least likely to leave a permanent mark from its own action, and is at least as effectual as any other irritant. (Dr. John Duncan, Edinburgh Med. Journal, Feb., p. 708.)

PRURITUS, ETC.—*Boro-Glyceride*.—I have found boro-glyceride a successful remedy in several cases of troublesome pruritus. In anal and pudendal itching, common in gouty and diabetic patients, it has afforded relief when other means have failed. It may be used diluted with water, one to three or four, or in severe cases pure. It is not commonly known that borax preparations are much more soothing and sedative to tender and abraded mucous surfaces than chlorate of potassium, which is, locally, somewhat of an irritant. Glycerine is itself a penetrating and sometimes an irritating application. The chemical compound boro-glyceride seems to be free from this objection, which is not the case with glycerinum boracis. In a case of sore tongue occurring in association with severe chronic pemphigus, glycerine of borax was found temporarily the more grateful of the two, keeping the mouth more moist than did equal parts of the boro-glyceride and water, but the latter seemed to have more healing effect. Honey of borax seems less irritating than the glycerine preparation. A lotion of boro-glyceride, two per cent. strength, was found of much value in a very obstinate case of cystitis, which yielded to no kind of treatment by diet and commonly approved drugs. My colleague, Mr. Marsh, at my request, began local treatment by washing out the bladder. There was great sensitiveness, and only two drachms of fluid could at first be tolerated in the viscus. This was gradually overcome by the preliminary

use of a four per cent. solution of cocaine, and thus the bladder was regularly washed out, at first every two days, then daily, and then twice daily. Great improvement resulted in about six weeks. This is probably the best method of treatment for such cases of cystitis as do not soon yield to ordinary means. (Dr. Dyce Duckworth, St. Bartholomew's Hospital Reports, p. 119.)

PSORIASIS.—*Chrysarobin and Salicylic Acid.*—Dr. George Henry Fox, in the second edition of his Photographic Illustrations of Skin Diseases, speaks of a combination of chrysarobin, salicylic acid, ether, and collodion for the external treatment of psoriasis. The formula which he advises is as follows:—Chrysarobin, 10 parts; salicylic acid, 10 parts; ether, 15 parts; flexible collodion, 100 parts. This combination is known at the New York Skin and Cancer Hospital as the Compound Chrysarobin Pigment. Dr. Fox speaks very highly of this treatment. Chrysophanic acid causes more staining of the integument, and sometimes excites a pretty severe dermatitis, besides injuring clothing. This combination does not produce these unpleasant results. (Practitioner, Jan., p. 62.)

PURPURIC ERUPTION DUE TO ADMINISTRATION OF IODIDE OF POTASSIUM.—At the Harveian Society, Oct. 15th, Mr. A. Q. Silcock related the case of a woman who was admitted into St. Mary's Hospital on account of proptosis. Although no history of syphilis could be obtained, iodide of potassium was prescribed in ten-grain doses three times a day. After the lapse of thirteen days, the dose was increased to fifteen grains; seven days later, a purpuric eruption appeared, most marked on the legs. Arsenic was then prescribed, in combination with the iodide, the rash disappearing after three days. The arsenic having been discontinued, the spots recurred in an aggravated form. Five minims of liquor arsenicalis were again added, and this was followed, in six or seven days, by a disappearance of the eruption and by general improvement. Arsenic was omitted; the rash again returning after ten days, accompanied with malaise and some catarrh. After this, the patient lost courage, and ceased to take her medicine regularly. A few months later, the iodide was again prescribed, and once more slight purpuric spots appeared after a few days, when the drug was finally omitted, the case being regarded as one of exostosis or of ossifying chondroma. In his remarks, Mr. Silcock rejected the view that the effect was due to increased diapedesis, such as is said to follow the intravenous injection of salines. Arsenic was prescribed in the hope that it might possess the same specific influence which attaches to its administration in bromide-eruptions. He believed it was frequently prescribed conjointly with iodide of potassium, especially at the Lock Hospital. (British Med. Journal, Oct. 24.)

RINGWORM.—*Evidence of Cure.*—It is a very easy matter to decide whether a case of ringworm be cured or not (if sufficient time be given to the examination of the head), by the presence or absence of short, fragile, broken-off hairs, called stumps; and I cannot do better than quote the definition now adopted by the Medical Officers of Schools Association, and published by them in their "Code," in reference to this matter: "When may a pupil who has had ringworm rejoin a school?—When, the whole scalp having been examined in a good light, and any suspicious spot scrutinised with a lens, no broken-off stumpy hairs (which give evidence of the ringworm fungus when carefully examined under the microscope) are to be detected. It is sometimes considered that ringworm is cured when the hair commences to grow on the diseased places, but this is a mistake, for it frequently happens that diseased broken-off hairs remain, and the disease may thus exist for months or years. It is often very difficult to detect the short stumps which protrude only a sixteenth or an eighth of an inch, and it is quite useless to examine short cut-off healthy hairs from a suspicious spot under the microscope for the ringworm fungus." What I wish the profession to realise is, that when remedies are said to cure obstinate ringworm in a week or two, there must be a mistake somewhere; either the case was not one of tinea tonsurans at all, or else the disease cannot have been cured in such a short space of time, except by the application of strong caustics, which would cause scars, or by the production of kerion by croton oil or other means. It is impossible for the diseased stumps to be got out of the follicles, and for new hair to grow from them, in less than from six to twelve weeks. As a rule, lotions or ointments have to be assiduously applied for months before the case is quite well; and unless kerion has been set up, it is not justifiable to certify a patch of ringworm to be cured until new hair has replaced the diseased stumps, for it is easy for these to be rubbed down on a level with the skin, and for the place to appear well to an unpractised eye. Diseased stumps do not suddenly grow up into healthy hairs, but they come out and are replaced by fine new downy hairs; and, even when these appear, it by no means proves the case to be cured, as there are generally a few diseased stumps left, which can easily be seen with a lens, their removal being most difficult, and sometimes impossible for months. Therefore, although most of the hair may be growing firmly and freely over a patch of ringworm, this alone does not prove the case to be cured. (Dr. Alder Smith, *Lancet*, Feb. 27.)

Ringworm.—Ringworm of the most obstinate character may, according to Dr. Saerlis, writing in the *Medicina Contemporanea* of Lisbon, be cured in ten days by cutting the hair from the affected spot, pouring turpentine on it, letting it run over the

whole head, and rubbing well with the finger. After this has caused a smarting sensation for from three to five minutes, it is washed off with carbolated soap. Hot water is then used for washing the whole head, and the affected spots touched with dilute tincture of iodine or with a 2 per cent. solution of iodine and turpentine. This process is to be repeated once or twice a day. (Lancet, Feb. 20, p. 368.)

TUMOUR OF THE NECK.—*A curious Tumour of the Neck.*—I have long been familiar with a very peculiar tumour growth which affects the upper part of the neck. A lump resembling a potato forms quickly, but painlessly, under the upper part of the sterno-mastoid muscle. Probably it begins in the lymphatic glands; it is a single, hard, nodular mass. It bulges on both sides of the muscle, is very firm, and presents great bossy projections on its surface. The clinical course of this tumour is rapid growth, ulceration, a fungous mass, hemorrhage, and death within six or eight months of the beginning. It is, I believe, a lympho-sarcoma in histological language, but I know of no other regions of the body in which a precisely similar kind of tumour occurs. I have seen at least a dozen examples of it, and they are all very much alike. Its subjects are usually healthy men of middle age. They are always primary, always on one side only, and never cause growths elsewhere. They kill by the rapidity of their local growth. (Prof. J. Hutchinson, American Journal of Med. Sciences, Jan., p. 160.)

VENEREAL AFFECTIONS.

GONORRHOEA.—*Treatment by Grooved Bougies.*—For this purpose I constructed nickel-plated bougies with grooves. These bougies are slightly conical, and twenty-five centimetres in length. They have six grooves, which are about a millimetre and a-half deep, and become shallower towards the point, stopping entirely at about five centimetres from the point, so that the front part of the bougie is entirely smooth. (Weiss and Son, of 287, Oxford-street, London, manufacture these bougies.) Into the grooves of these bougies I pour a paste, which hardens at the ordinary air temperature. With respect to the composition of the paste, I recommend the following:—Cacao butter, 100 parts; nitrate of silver, 1 to 1·5 part; balsam of copaiba, 2 parts. (Old-standing cases require more than one part of nitrate of silver, but I should not recommend more than 1·5.) I tried, also, other preparations, such as resorcin, iodoform, zinc, and iodnatrium, but found them all inferior to the nitrate of silver. With regard to the preparation of the bougies, I must lay stress on the fact that the salve must not be heated too much, for in that case the nitrate of silver would be reduced to silver and would be inefficient. Therefore,

put about two teaspoonfuls of the paste into a small vessel, and heat it slowly and carefully. The vessel must not become so warm that it cannot be touched with the bare hand. Such a degree of heat is not necessary to dissolve the paste, and, as I have shown, is injurious. Neither is it necessary to wait until the entire contents of the vessel are melted, for if so the already dissolved salve becomes too hot and reduced. After dissolving, the salve is poured over the bougie, which is horizontally laid over a vessel to catch the drippings. After the salve has become hardened, the bougie is smoothed with any sharp-edged tool. Care must be taken that the smooth front part of the bougie is left uncovered by the salve. Before using, draw the bougie several times through the hand, the warmth of which will cause sufficient of the salve to melt to lubricate the metallic surface of the bougie. The smooth front part of the bougie is rubbed with glycerine, so that the instrument, if the size corresponds to the diameter of the urethra, will easily pass. The grooved bougie leads the salve beyond the narrow places. At the temperature of the body the salve melts in one minute. (Dr. L. Caspar, p. 331.)

GONORRHOEAL RHEUMATISM.—The measures I have adopted in the treatment of this disease have not led to results that justify the decided recommendation of any course of treatment. At the same time, I am convinced that it is important to cure, as soon as possible, the inflammation of the genito-urinary mucous membrane. In addition, the employment of antipyretics, such as the salicyl-compounds, is beneficial when pyrexia exists; the administration of iodide of potassium, colchicum, guaiac, and alkalis appeared to produce a good effect in all stages of the disease; while blisters, moderate pressure, the interrupted induced electrical current, and passive movements, were apparently of service in the more chronic stages of the joint affection. (Dr. Fraser, *Edinburgh Med. Journal*, Sept., p. 228.)

GONORRHOEA-SYPHILIS.—The frequent occurrence of cases in which syphilis follows what was considered to be only gonorrhœa, suggests the suitability of recognising what we might call gonorrhœa-syphilis. It is known to all that Hunter regarded the poison of gonorrhœa as identical with that of syphilis, and, no doubt, it was the occurrence of cases such as I now refer to which had caused his belief. There is no danger now that the name I have proposed should mislead any into adopting again his erroneous generalisation. Cases of gonorrhœa-syphilis must be familiar to all who have opportunities for observation. The urethral inflammation is exactly like that of gonorrhœa, and by no means suggests a urethral chancre; and, in many cases, the urethra has been examined carefully with the hope of discovering local induration or a tender spot without result. (Prof. Hutchinson, *British Med. Journal*, Jan. 9, p. 59.)

INHERITED SYPHILIS.—“*Ringworm of the Tongue*” in.—A few words must be said as to the possible dependence of what has been called ringworm of the tongue upon inherited taint. It is well known that affections of this organ at later stages are exceedingly rare in connection with inheritance, whilst they are very common in the acquired form. I have placed on the table some wax casts, which were given me by M. Parrot, showing this affection in young children the subjects of taint. M. Parrot taught that the so-called ringworm of the tongue was usually a symptom of congenital syphilis. Although I have seen several marked examples of it in which there was no reason whatever to suspect such a cause, I have also seen others in which that diagnosis was probably correct. An infant (George R.), aged 8 months, was sent to me by a surgeon in Scarborough. All history of syphilis in the parents was denied, but two very suspicious conditions were present together. They were wandering semi-circular patches on the tongue, and periostitis of the lower part of the humerus. There was much swelling and tenderness of the affected bone; dislocation of the radius had been diagnosed. Under iodide of potassium, the periostitis entirely subsided, but the elbow was left somewhat stiff. The tongue also recovered. In another case of ringworm of the tongue, in a young child, I had myself treated the father for syphilis within a few years. The child, however, appeared to be in excellent health, and had never shown any suspicious symptoms excepting the tongue. We may probably conclude that this form of superficial glossitis is in some cases of syphilitic origin, but in the majority not so. It is exceedingly difficult to diagnose between the two. (Prof. Hutchinson, British Med. Journal, Feb. 6, p. 242.)

Lupus due to Inherited Syphilis.—First, then, let me grant that there is a rare form of lupus which is directly due to inherited syphilis. It occurs usually at about the same age as the interstitial keratitis, that is, from five years old to adult life. It differs from common lupus, and even from the forms of lupus which occur in connection with acquired syphilis, in that it is never preceded by any tubercular stage, but is from the beginning erosive, or even phagedænic. It is, in fact, a form of phagedæna, but it attacks usually the favourite position of lupus, the nose. Its progress is rapid, and it may in a few weeks destroy the whole nose, and spread upon the cheeks. I have seen a good many well marked examples of this malady, but none during the last five years, and I do not possess a single good portrait of it to show you. I have, however, several photographs which show its ravages, and the kind of scars which it leaves; these are very different from those caused by common lupus. The latter, as is well known, usually leaves a border of skin near to its

margin more or less involved, it being difficult to get it absolutely well. This disease, on the contrary, heals absolutely, and the skin, up to its very edge, is left quite sound. Hence there results a puckered scar, which suggests that healthy skin had been more or less undermined, and its edges in the healing had fallen down together. This malady is never chronic. It may be cured in a few weeks by free cauterisation, and is always restrained, if not cured, by the iodide of potassium. The latter remedy is not nearly so effectual as cauterisation. In this fact you will see an item of evidence in support of the view which regards it as a form of phagedæna rather than of lupus. Such, indeed, it is. It seldom or never recurs after once stopped, and it never leads to anything resembling common lupus. Whether, indeed, it is originally a skin disease, I am not certain. I have never seen it in its very earliest stage, and it may be that it usually commences as a periosteal or perichondrial gumma of the septum nasi. The septum is always to some extent involved. (Prof. Hutchinson, pp. 344, 354.)

Immunity from Chronic Skin Diseases in Inherited Syphilis.—If you ask me whether there be not some forms of psoriasis, of lichen, or of eczema, which really acknowledge a parentage in hereditary syphilis, I unhesitatingly answer, "No." I know of nothing of the kind. I have seen great numbers of those who, by their teeth, their keratitis, or other conditions, could be recognised as beyond doubt the subjects of this taint, and I have scarcely seen one who was the subject of a chronic skin disease. I never saw acne either common or in any way peculiar in these patients. In numberless cases, nervous parents, or medical men almost equally anxious, have quoted to me the fact that a child was liable to spots on the face or body in proof that an inheritance of syphilis existed. Many a father, cognisant of dangerous antecedents in himself, has made himself miserable by suspicions of this kind, and in not a few have I seen that my most explicit assurances failed to remove his doubts. To you, I may now say that I do not remember a single instance in which I have recognised an eruption in a child after the first two years of infancy, which I believed to be syphilitic. I, therefore, feel justified now, when I am asked about eruptions when it is impracticable to examine the patient, in assuring those who consult me that, in all probability, the rash is nothing but a simple one, and that, as a matter of fact, inherited syphilis never discloses itself in that way. You will see that this observation, if it be trustworthy, is very important. I should examine, with the utmost interest, any cases produced by others, or published records, which might seem to confute it. For the present, I simply record my own belief. (Prof. Hutchinson, p. 352.)

PHAGEDÆNA.—*Its Origin in Syphilis.*—A knowledge of the fact that phagedæna usually goes with true syphilis is of much importance for purposes of retrospective diagnosis to those engaged in medical practice. Not unfrequently, with symptoms of visceral or nerve disease, an examination of the genitals is made in order to seek for scars. Whilst some have assumed that scars on the penis, or its extensive malformation by bygone phagedæna, imply the probability of syphilis, others have asserted that they rather favour the belief that the disease was not true syphilis. My vote would go with those who regard them as important though not conclusive evidence of constitutional disease. I have very seldom seen scars on the penis in patients who had not had syphilis, and still more seldom the evidences of phagedænic action. (Prof. Hutchinson, p. 339.)

SUPPURATING BUBO AND INGUINAL SCARS AS EVIDENCE OF SYPHILIS.—I am compelled, as the result of personal observation, to deviate from the popular creed, and to say that I should regard scars in the groin as presumptive evidence of syphilis. Our rules of diagnosis have been, I cannot but think, far too definitely laid down on these matters. In private practice it is very rarely indeed that we have to deal with inflamed bubos. It so happens that, of late years, almost all the cases of suppurated bubo which I have seen were cases of syphilis. It is not, I believe, on the other hand, very exceptional for the typical chancroid to cause no enlargement of the glands at all. I really fear that I may be suspected of differing for the sake of it, but I am compelled to record the result of unprejudiced observation. That an uninflamed indurated sore will be attended by uninflamed indurated glands, I fully admit; but the fact remains, that a great many infecting sores do inflame and suppurate, and when that is the case the glands will follow suit. Nor is this inflammation always the result of a mixed contagion; it often, I feel sure, results from personal proclivity in connection with a fairly pure syphilitic virus. (Prof. Hutchinson, British Med. Journal, Jan. 9.)

SYPHILIS.—*Method of Treatment by Mercury.*—I will state briefly my own rules of practice, and the impressions which I have formed as to results. As those impressions have been formed for many years, chiefly in private practice, and amongst patients concerning whom I have often had opportunities for obtaining information over long periods, I am in a position to speak with much more confidence as to results than would otherwise have been the case. The remedy which I have used almost exclusively has been the grey powder, and the dose usually not more than a single grain. This dose I have given from three to six times in the course of twenty-four hours, according to circumstances, and seldom for a shorter course than six months in the first instance. If this dose be given

to a patient with an indurated sore, but in whom, as yet, no secondary symptoms have appeared, the result will usually be that none will occur. If the rash have already made its appearance before the treatment is commenced, as a rule it quickly fades; and so long as the patient continues the remedy he remains free. The exceptions to completeness of freedom concern chiefly the mouth and throat. Respecting the results of treatment in general, I believe I may with truth assert that I have never, in any single case of late years, seen a severe eruption on the skin develop itself after a mercurial course of the kind indicated had been commenced. It is a fact, then, that the remedy manifests antidotal power in that it can not only remove, but anticipate and prevent, by far the most conspicuous manifestations of the disease. I cannot make so strong an assertion respecting some other of the symptoms of the later part of the secondary stage. I have seen iritis, and neuro-retinitis, occur occasionally, with even some severity, in cases which had been well treated; and, in very exceptional instances, I have witnessed disease of the arteries of the brain. In a large majority of cases, however, a six months' course of small doses appears to be adequate to the complete and permanent cure of the disease. No relapses occur, and the patient remains afterwards in excellent health. (Prof. Hutchinson, p. 345.)

[Abstracts of Mr. Hutchinson's Lectures on "Moot Points in Syphilis," will be found at pages 336—356 of this volume. See also preceding paragraphs of this *Synopsis*.]

Syphilis.—*Administration of Iodide of Potassium in Milk.*—I wish to say a word in favour of milk as a most suitable vehicle in which to administer the iodide of potassium, notably in cases where large quantities of the drug have to be used. Several years ago a patient first called my attention to the fact that he could take his dose of iodide of potassium in milk without minding the taste, which otherwise was very offensive to him. I adopted the suggestion at once, and found it of great service in many cases. Ten grains or more of the iodide in a gill of milk (cold) makes a very palatable drink, and imparts only a mild metallic taste to the fluid, which most patients find not at all disagreeable. I have used this method in a routine way with the happiest result in several instances in those desperate cases where some portion of the nervous system gives out, food is unpalatable or cannot be taken, and the indication is, disregarding all else, to push the iodide rapidly to the point of tolerance. In such a case no time can be lost, and a fixed routine system which shall accomplish all the needs of nourishment as well as medication is a very valuable factor in the treatment. (Dr. E. L. Keyes, Prof. of Genito-Urinary Diseases in Belle Vue Hospital, New York, *Annals of Surgery*, Oct., p. 307.)

SYPHILITIC ULCERATION OF THE INTESTINE.—Mr. A. Blackmore, surgeon to the Manchester Lock Hospital, publishes the following important case:—E. A.—, a prostitute, aged twenty-five, presented herself at the Lock Hospital on June 15th, 1885, complaining of great pain about the vulva and vagina. On examination, these were found swollen, red, and exceedingly tender, so that the use of the speculum could not be borne. A copious discharge, of an unhealthy sero-purulent character, was present. She had been drinking much recently, and was in a generally low condition. Tongue fairly clean. Temperature 99°. No headache. Appetite fair. She had had syphilis “some time ago,” within the last three years. The skin now presented numerous copper-coloured patches on the arms, legs, and thighs. The mucous membrane of the mouth and throat was free from ulcers. On admission to the hospital she was placed in bed, and during the 16th and 17th of June the local conditions were improved by copious bathing and injections, the general state remaining about the same. The bowels were loose. Temperature normal. On the 18th copious hemorrhage from the bowels took place. This first directed special attention to the intestinal tract. The patient complained of a feeling of soreness, but the abdomen was not distended, and there was only slight pain on pressure. The hemorrhage recurred to a large extent on the succeeding days, with but little pain or other symptoms but those arising from loss of blood. On the 1st, 2nd, and 3rd of July the hemorrhage continued, reducing the patient to a state of collapse, and she gradually sank, dying on the evening of the 6th of July. During the whole time that she was in the hospital her temperature never exceeded 99·2°. She took her food well this consisted of milk, eggs, light milk puddings, and brandy. At the post-mortem, performed twenty-four hours after death, the viscera, to the naked eye, were all fairly healthy; the liver was firmer than usual; the spleen was normal in size, colour, and consistence; the mesenteric glands healthy, and not enlarged. The uterus was intensely congested, with submucous hemorrhages. The mucous membrane of the small intestine was red and congested, the blood vessels being much injected; but Peyer’s patches were not more affected than the other parts of the surface, and were not more distinct and prominent than normal. From the cæcum downwards to the middle of the large intestine, the mucous membrane was studded with ulcers and small nodules in various stages of ulceration. The ulcers varied in size, from a sixpence to a pin’s head, with sharply cut edges of a circular form. In some parts two or more had coalesced, forming one large ulcer, the edge of which was formed by a series of curves. The ulcerations varied in extent, some being superficial in the mucous membrane only; others had

perforated the muscular coat, leaving scarcely more than the peritoneum. The nodules varied in size from a small dot to that of a split pea, were raised above the surface of the membrane, and showed generally an ulcerating surface. The rectum and lower part of the colon were apparently free from disease. The peritoneal surface of the bowel was healthy, and there was no evidence of any peritonitis in the abdominal cavity. The exact source of the hemorrhage could not be discovered. (*Lancet*, Oct. 3, p. 615.)

SYPHILITIC ULCERATIVE TRACHEITIS.—At the Pathological Society, on Dec. 15th, Mr. Quarry Silcock showed a specimen of syphilitic ulcerative tracheitis taken from a man aged thirty-two. There were numerous ulcers, which began below the vocal cords and extended even into the smallest bronchioles of both lungs. Catarrhal pneumonia led to death. The symptoms were those of chronic bronchitis. Treatment proved of no avail. The literature showed that many cases of the kind had been recorded. In reply to Dr. Bristowe, he said there was a gumma in the liver, and a well-marked history of syphilis. (*Lancet*, Dec. 19, p. 1140.)

SYNOVITIS OF KNEE IN HEREDITARY SYPHILIS.—To recapitulate in a few words the principal features of the condition which was demonstrated by these few cases, one would say that the synovitis was symmetrical, affecting only the knees, that it was of a chronic and painless character, and that all the patients were the subjects of hereditary syphilis. I can offer no satisfactory explanation of the facts here recorded, but must content myself with drawing attention to a few clinical symptoms. At the same time I would like to point out that if the condition which is now under consideration be really due to hereditary syphilis, the similarity between interstitial keratitis and this symmetrical synovitis is so marked as scarcely to require any lengthened explanation. Both knees, like the eyes, are, in my experience, sooner or later affected, and often with an interval between the commencement of the symptoms in each joint. Both diseases are exceedingly chronic, and produce little or no destructive changes in the tissues involved, neither supuration nor adhesions having occurred in any of the cases that came under my observation. They are also both liable to relapses, and not very amenable to treatment. The age of the patients is another and a striking point of similarity, for seven out of the eleven were between eight and twelve years of age. In two cases the symptoms arose at a much later date, but this also occurs in interstitial keratitis, so that even in its rarer forms it corresponds with that disease in this particular—that of the age of the patient. I am at a loss to explain why the knees

should be affected in preference to other joints. It is probable that, with further observation, the knees will not be found to occupy this solitary distinction, and that other joints will be seen to be affected in a similar manner. But up to the present time I have not seen this chronic symmetrical synovitis, which appears to be associated with hereditary syphilis, in any other joints besides the knees. That it should be symmetrical is only what one expects from our knowledge of the similar manifestations of the disease at this period of life. (Mr. H. H. Clutton, p. 356.)

AFFECTIONS OF THE EYE AND EAR.

ATROPHY OF OPTIC NERVE.—*Syphilis as a Cause.*—The question of the influence of that many-headed hydra, syphilis, in producing atrophy of the optic nerve, Mr. Hutchinson has already discussed in the Ophthalmic Hospital Reports and elsewhere, but I cannot think that it has been exhausted. According to this author, in atrophy due to cerebral syphilis gummata are nearly always the exciting cause. Papillitis may be produced by meningeal gummata. Syphilitic disease of the arteries may produce hemorrhage or thrombosis (the latter only in the acquired disease). Syphilitic disease of the bone may produce atrophy, as also syphilitic degenerative changes in the nerve-centres. Hutchinson also suspects that syphilis can produce a travelling form of primary neuritis. It is especially with reference to this latter point that evidence seems to be needed. Syphilis is so common, and such a very convenient resource when there is doubt about a diagnosis, that one is, perhaps, inclined to accredit it with the causation of many conditions of which it is innocent. It would be well, therefore, to have, as far as possible, the diagnostic points brought out clearly. Many cases of apparently simple atrophy come to the hospitals in which a history of syphilis can be obtained, but where there seem to be no means whatever of making certain that the syphilis is the cause, no other so obvious cause being present, it is accepted. (Mr. Arthur H. Benson, p. 361.)

CONICAL CORNEA.—*Treatment by Operation.*—The operation I have always performed for conical cornea was, I believe, introduced by Mr. Bader. It consists in the removal of an elliptical portion from the apex of the cone, and is easily performed as follows. The eye being cucainised, the lids are fixed open by a speculum, and the eyeball well steadied by fixing forceps. A thin Gräfe's extraction-knife is then passed through the cone from side to side, entering the anterior chamber, and made to cut its way out either upwards or downwards, forming a minute flap. The aqueous humour, of course, escapes. The flap is then seized with iris-forceps and cut off. The result is a sloping

sided horizontal notch in the cornea. A drop of solution of eserine is then applied; both eyes are strapped up and covered with small pads of wet lint, secured by a bandage. Neither eye is opened for ten days. At the end of that time, both are examined. If the aqueous humour be retained, the eye which has not been operated on is left uncovered; but if the wound be still open, both eyes are kept bandaged until it has closed. Healing is often tedious. In the result, a small central opacity, with or without anterior synechia, remains; the cone is reduced, and vision is greatly improved. Failures are extremely rare. [Two cases are given in the paper.] (Mr. Charles Higgins, British Med. Journal, Nov. 28th, p. 1014.)

CONJUNCTIVITIS.—*Treatment by Corrosive Sublimate.*—Dr. Bieloff, of Kiew, resting on the fact, which he believes to be well ascertained, that the infectious nature of conjunctivitis of all kinds is attributable to the presence of micro-organisms, and especially of the gonococcus of Neisser, in the secretion, recommends that the treatment should consist in the employment of disinfectants which are capable of effecting the destruction of such micro-organisms. Of all the means at our disposal he considers that corrosive sublimate is the most efficacious. In cases that have fallen under his own observation he has found that, out of 65 patients, 26 presented catarrhal conjunctivitis, 19 phlyctenular conjunctivitis, 2 croupous conjunctivitis, 2 conjunctivitis of a blennorrhagic nature, and 16 were of a granular character. In all cases the employment of a solution of the perchloride of mercury was followed by a very remarkable diminution of secretion, and by the gradual disappearance of chemotic infiltration of the conjunctiva; the duration of the affection was greatly shortened; and a perfect recovery followed, even though in many instances no nitrate of silver was used. In acute forms of the disease the corrosive sublimate acted as an abortive. In forms in which some corneal affection was present, and when nitrate of silver is badly borne, he has found it very serviceable and assisting the subsequent reparation of lesion. The proportion of the corrosive sublimate is of much importance, and it should in no instance exceed one two-thousandth, or 1 grain in 4 ounces of water. (Practitioner, Jan., p. 58.)

CONVERGENT STRABISMUS.—*Early Treatment.*—Cases of squint naturally divide themselves into those who are, and those who are not, old enough to wear glasses. I think that glasses may with advantage be given much earlier than was the custom till quite recently. I have frequently ordered them for children three and a-half years old, and sometimes for even younger ones, and have never seen any reason to regret having done so. When the child can wear glasses, I would order them for every case in

which the squint is diminished by atropine; and in others when it is alternating, if it is considered desirable to postpone operating. When glasses cannot be worn, treatment may be postponed as long as the squint is really alternating. As soon as it ceases to be so, it must either be rectified by an operation, or the working eye must be kept covered for an hour or two every day, in order that the other may not become amblyopic. It must be borne in mind that this has no curative effect on the squint, for the covered eye squints behind its shield to the same extent that its companion did; it is merely intended to ward off the amblyopia, or to cure its slighter degrees. When a squint diminishes or disappears under atropine, but the child is too young to wear glasses, it has been proposed to keep the eyes constantly under the influence of a weak solution of atropine. There are, however, two serious objections to this course: in the first place, general toxic symptoms occasionally arise; and, in the second, accidents may easily arise from the defective sight. Especially is this the case among the children of the poor, who are often left to themselves or in the charge of a child not much older. (Mr. W. Adam Frost, *British Med. Journal*, Jan. 16, p. 102.)

DIABETIC RETINITIS.—At the Ophthalmological Society, on Dec. 10th, Mr. Nettleship showed a living specimen and a drawing of a case of diabetic retinitis. A large number of patches and spots of white deposit were scattered over the central part of the fundus. They differed in position, mode of arrangement, and colour, from those of albuminuric retinitis. The yellow spot of the right eye was occupied by a dense irregular mass of the same deposit. There was no tendency to a spoke-like radiation around the yellow spot. The general tint of the spots was more yellow than those of albuminuric retinitis. The case was that of a man aged fifty, with cataract of the left eye. The appearances did not alter from January till April, 1885. There was no albuminuria or heart disease. (*Lancet*, Dec. 19, p. 1144.)

EAR DISEASE IN DIPHTHERIA AND SCARLET FEVER.—Dr. Thomas Barr, of the Glasgow Ear Hospital, concludes the clinical history of a case of scarlet fever, complicated with nasal and pharyngeal diphtheria, acute suppuration of both middle ears, rapid destruction of tympanic membranes, serious loss of hearing, facial paralysis, and abscess of the lachrymal sac, ending in recovery, with the following remarks:—"1. This case bears out what Burckhardt-Merian has especially drawn attention to—namely, that scarlet fever, when complicated with or followed by diphtheria, is apt to give rise to a most destructive type of disease of the ear. It is probable that in such cases there is a real propagation of the diphtheritic membrane along the Eus-

tachian tube to the tympanic cavity, and even to the external auditory canal. We have not simply to deal with an ordinary collection of purulent secretion in the tympanic cavity, with rupture of the membrane and evacuation of the pus; we have rather to do with a rapidly destructive ulcerative process, which, as is shown by this case, denudes the organ of the tympanic membrane in a very short time. There is reason to believe that scarlet fever alone does not produce such havoc; the addition of the diphtheritic poison seems to impart that destructive tendency to the ear complication which may terminate in deaf-mutism, or even lead to a fatal issue. 2. From the favourable course of the facial paralysis in this case, we need not despair of recovery from this complication of purulent disease of the ear. In children, not only is the facial nerve, as it lies in its osseous canal on the inner wall of the tympanum, in close juxtaposition to the mucous membrane of the tympanic cavity, but the bony walls of this canal are very frequently defective when the neurilemma of the nerve is in actual contact with the mucous membrane. It is easy to understand how, with such an anatomical arrangement, the pressure of granulation tissue, swollen mucous membrane, or even of secretion, may produce paralysis of the facial nerve without ulcerative disease of the bone, and therefore without the same gloomy prognosis. 3. The recovery of fair hearing also illustrates a fact which is not unfrequently observed—namely, that fair hearing may exist even when the tympanic membrane is almost quite destroyed. What is of more importance than the presence of the tympanic membrane is a normal mobility of the fenestral structures. If these structures, with the stapes, are not thickened, bound down by adhesions, or subjected to pressure, fair hearing power may be enjoyed, although the membrane, with even the malleus and incus, should have been swept away. 4. This case also shows in a striking way the value of treatment by rectified spirit in purulent disease of the middle ear associated with granular excrescences.” [See next paragraph.] (Lancet, Oct. 10, p. 659.)

Purulent Disease of Middle Ear.—Treatment by Rectified Spirit.—The following is Dr. Barr’s description of the treatment pursued in the case referred to above:—“Diluted rectified spirit was employed in the strength of one-third of spirit and two-thirds of water. The following process was carried out every eight hours:—(1) Careful syringing with a warm solution of boracic acid; (2) removal of all the moisture in the interior of the ear with absorbent cotton on a cotton holder; (3) instilling into the ear fifteen drops (warm) of the diluted spirit; (4) allowing it to remain in the ear, while the child lay on the opposite side, for fifteen minutes; (5) drying the canal with cotton, and then placing a plug of salicylated cotton in the orifice of the ear. This

treatment was, of course, applied to both ears. In addition, and in order to ensure still more thoroughly the complete expulsion of the purulent secretion, Politzer's method of inflating the middle ear was performed once a day after the syringing. The nasal passages were also syringed daily with a tepid solution of chlorate of potash. The strength of the spirit was gradually increased to equal parts of water and rectified spirit, but when employed stronger than this the pain excited by it compelled us to return to the weaker form. This method of treatment very soon proved itself to be the most efficient. The discharge perceptibly diminished; the granulation tissue began to shrink; and the hearing power became more acute." (Ibid, p. 659.)

EUCALYPTUS-AIR IN CATARACT OPERATIONS.—My object is to bring before ophthalmic surgeons the utility of Mr. Mayo Robson's dry eucalyptus-spray, whilst operating for the various forms of cataract. It occurred to me to use this antiseptic atmosphere so as to secure the cataract a complete antiseptic operation. Previously to its use, it was not a rare occurrence to loose an uncomplicated cataract with the partial antiseptic precautions. Since its use, the twenty-five cases, as follows—seven congenital cataracts, fifteen senile, and six traumatic cataracts—have, with one exception, in a senile cataract, of acute glaucoma (which required an iridectomy, and afterwards got fair sight), done perfectly well. Previously to operating, the eyes and surrounding parts are washed inside and out with carbolic lotion, 1 in 80. The instruments are washed in the same lotion, and, during the operation, the eucalyptus-air plays on the eye, and does not cease until a circular pad, consisting of a thin layer of absorbent wool, is placed next the eye; then a slightly thicker layer of salicylic silk (Mr. McGill's); over this, another layer of absorbent wool; and above and without all, a thin layer of black cotton-wool. This pad is retained on the eye, if all be going well, for seven to ten days. It is seldom that it requires earlier removal; in which case, the corneal section will be fairly well united. My conclusions with regard to this treatment are these. 1. It provides, with other precautions, a complete antiseptic operation for cataract. 2. There is less pain and irritation following the operation when the eucalyptus-air is used. 3. Since its use, I have not had suppuration in a case of either congenital, traumatic, or senile cataract; nor have there been any signs of this. Previously to its use, such untoward results occasionally occurred, notwithstanding every other precaution. (Mr. Bendelack Hewetson, Leeds, British Med. Journal, Oct. 3, p. 644.)

EVISCEATION OF EYE-BALL, AND USE OF THE ARTIFICIAL VITREOUS.—The instruments necessary for the due performance of the operations are:—1, a hand-spray; 2, a siphon-tube of india-

rubber to flood the eye after or during operation; 3, an ample supply of solution of corrosive sublimate (1 to 1000); 4, an eye-speculum; 5, fixing and dressing forceps, two pairs; 6, a Gräfe's knife; 7, a spoon to evacuate contents (Bunge, of Halle, has devised an instrument, but any scoop answers equally well); 8, needles threaded with chromicised catgut (fine size); 9, artificial vitreous bodies in assorted sizes; 10, dressings, namely, iodoform, wood-wool pads in Lister's gauze, oiled silk, glycerine, boracic or sublimated bandages. The operation is divided into two parts. The first part, complete in itself, is evisceration. It is conducted as follows:—1st. Anæsthetise the patient.—2nd. Use the hand-spray, and thoroughly cleanse and disinfect the appendages with 1 to 1000 solution of corrosive sublimate.—3rd. Transfix and remove the front of the eye with a Gräfe's knife at the corneo-scleral margin, cutting round the conjunctiva first.—4th. Empty the contents of the globe in any way that is convenient, taking special care to remove the ciliary body and choroid, leaving a clean white sclera.—5th. With a thin india-rubber tube (Inst. 2), used siphonwise, run the sublimate solution into the emptied globe; during the performance of the operation, it will help to arrest bleeding.—6th. Select needles slightly curved for sewing up, threaded with gut. (And here, if we please, we may leave the patient, secure in the knowledge that sympathetic disease will not attack the other eye except under most exceptional circumstances, and that he will possess a movable, though very small stump, on which to adjust an artificial eye; but where a perfect æsthetic result is sought for, and especially in children, for reasons hereafter stated, we advance another stage, and, before sewing up the sclera.)—7th. Take the glass sphere best suited to the case, slit the sclera vertically, until the sphere will with difficulty enter the cavity. This difficulty only refers to introducing the globe; when it is in, the sclera should unite easily without any tension, and leave no awkward angles; therefore, the largest sphere fulfilling these conditions is the best; finally, sew up carefully with strong chromicised catgut, taking care to get the scleral edges into apposition. Five stitches are generally sufficient. Lastly, draw conjunctiva over, and unite at right angle to the scleral wound.—8th. Spread a thick layer of finely powdered iodoform over the whole conjunctiva, and dress with salicylic-wool in a double layer of Lister's gauze.—9th. Keep the patient in bed for three days, and dress with hand-spray, till all risk of septic trouble has passed over. (Dr. Mules, p. 366.)

EXOSTOSIS OF THE EXTERNAL EAR.—Where an exostosis is the result of suppurative inflammation, arrest of the discharge is an indispensable first requisite. In the case of multiple ivory exostoses, which have so obstructed one another's growth as to leave a narrow passage for a sound, the occasional removal of cerumen

and epithelial *débris* may be all that is required for the preservation of hearing. When the tumour is of soft bone, the use of an *écraseur*, or of a dentist's forceps or elevator, preceded or not by a few minutes' drilling, may suffice. For the treatment of ivory exostosis blocking the meatus, and so preventing the escape of purulent secretions, or causing deafness, drilling with the dental engine is the only operation that can be safely recommended. Excision with saw and chisel has, it is true, been resorted to, but the difficulty and danger of the operation are obvious, and constitute decided objections to its practice. Successfully to employ the dental engine, the patient must be placed on a couch about four feet from the ground, in order to bring him within reach of the drill; his head, furthermore, must be placed on a pillow, with the side to be operated on well exposed to the light. To protect the internal structures of the ear, in case the drill should slip, it is highly desirable to employ a spoon-like steel guard, made after a pattern, in thin copper, expressly to pass by the side of and behind the exostosis. A set of drills should also be provided, for experience shows that the gradual enlargement of a very small initial opening is the best mode of procedure. At least three assistants ought to be obtained, one to administer an anæsthetic, another to work the treadle of the dental engine, and another to keep the steel guard steadily in position. Without previously removing the skin, one may proceed at once to the perforation of the tumour, avoiding its base, keeping close to the side of the steel guard, and frequently taking out the drill to allow the sponging away of accumulated blood. (Mr. George P. Field, p. 376.)

HEMORRHAGIC AMBLYOPIA CURED BY DILATATION OF THE SPHINCTER ANI.—(By Robert N. Hartley, B.S.)—This somewhat sensational title is given to a short paragraph in the *Lancet*, for the 28th of Nov., 1885, drawing attention, in the history of a case, to the serious amount of amblyopia induced by frequently recurring hemorrhages extending over a long period of time. Last June the patient consulted the surgeon on account of gradually failing vision. On testing, this was found equal to $\frac{2}{7}$ °, while no type smaller than 14 of Jaeger could be made out. The ophthalmoscope gave negative results, with the exception of slight pallor of the discs. On inquiring as to the patient's general condition of health, he stated that for the last ten years his bowels were never moved without great pain, and seldom without bleeding, often profuse, so much so that lately he had repeatedly to quit his work on account of severe bleeding which saturated his clothes. On induction of anæsthesia under ether, the sphincter ani was stretched by means of the fingers until the lower part of the rectum was exposed. This portion of the bowel was found to be the seat of numerous small ulcerations.

These were swabbed out with carbolised glycerine. This treatment proved sufficient, and the man returned in October reporting that he had had no difficulty with his bowels, and no bleeding since being under ether; the vision had been entirely restored, as it now indicated $\frac{20}{20}$. Cases of amblyopia, such as this, occasionally present themselves in eye dispensary work, and are puzzling unless the loss of blood and its cause are recognized and treated. (Dr. J. Macfie, Glasgow Med. Journal, March, p. 244.)

IRITIS.—*Treatment by Combined Use of Cocaine and Atropine.*—

Mr. W. H. Jessop, in continuing his observations communicated to the Ophthalmological Society, on Jan. 8th, 1885, upon the combined use of cocaine and atropine in the treatment of iritis, finds that in the healthy eye of a child, aged 6 years, cocaine and atropine together produced an *ad maximum* dilatation of the pupil in 18 minutes, while atropine alone had no effect in the same time, and even at the end of an hour had produced a dilatation considerably less than that of the combined drugs. Mr. Jessop recommends discs containing $\frac{1}{200}$ grain of cocaine hydrochlorate and $\frac{1}{5000}$ grain of atropine in each, made at his suggestion by Messrs. Savory and Moore. The discs appear to have been used in the eleven cases given in the paper with much the same method as atropine under the same circumstances. He says:—"On looking over the notes of the above cases of iritis, treated by the combination of cocaine and atropine, we find the following constant and quickly attained results: great dilatation of the pupil, relief of pain, diminution of ciliary congestion, and decrease of intra-ocular tension when present. Now, in the active stages of iritis, as in inflammation of any other part, we have congestion of the vessels of the iris, and this gives rise to sluggishness, or even to contraction, of the pupil, followed often by posterior synechiæ. Therefore any treatment, to be successful, ought to be directed to relieving the iris of blood, and dilating the pupil as quickly as possible, so as to remove the pupillary edge of the iris from the central portion of the capsule of the lens. The pain, which is such a prominent symptom of iritis, is, I believe, due either to the turgid state of the vessels, giving rise to tension of the iris and so to pressure on its nerves, or to the tension of synechiæ. Considering the physiological action of the drugs employed, we find that atropine produces mydriasis by paralysing the endings of the oculo-motor nerve and the unstriped muscular fibre of the iris, and, according to most observers, by stimulating also the dilating mechanism of the pupil. The action of atropine on the blood-vessels of the iris is apparently of little importance, as any constricting influence would be quickly followed by dilatation. Cocaine, as I showed in a paper before the Royal Society, on June 18th, 1885, acts by stimula-

ting the endings of the mydriatic nerve of the eye, and also by constricting the small bloodvessels, thus producing a very large mydriasis, acting always to the movements of light and accommodation. Thus we see that neither drug produces alone all the effects necessary in the treatment of a case of iritis; but the combination of cocaine and atropine gives us all these--viz., an *ad maximum* dilatation of the pupil, constriction of the vessels of the iris, and inaction of the pupil to light and accommodation. The *ad maximum* dilatation of the pupil produced by this combination keeps the pupillary border of the iris away from the capsule of the lens, preventing adhesions, and also breaks down synechiæ when formed by stretching them, and by constricting their vascular supply literally starves them. From these facts doubtless ensued the excellent results of cocaine and atropine in the cases above enumerated; but I would not, of course, suggest that this combination will have much effect in cases of old complete posterior synechiæ, but rather that we have in it a therapeutical remedy much more potent and certain in action in iritis than atropine. The rapid cessation of pain, which I have always seen follow the application of cocaine and atropine in iritis, enabled me to dispense with blisters and leeches in these cases." (Mr. W. H. Jessop, *Lancet*, Oct. 10, p. 661.)

MÉNIÈRE'S DISEASE.—In true Ménière's disease the treatment should consist, during the attack, of rest in the recumbent posture; restriction of diet; cold applications to the head, and sinapisms to the epigastrium and feet. As the attack is generally short and sudden, the after treatment only is that most worth considering, and here the result is very unsatisfactory. Bromide and iodide of potassium in large doses, with or without strychnia, nux vomica, or gelsemium, have seemed to improve the hearing to a very limited extent, although their influence in lessening the tinnitus and vertigo is often very beneficial. The inunction of iodine liniment, of mercurial ointment, iodoform behind the ear, the use of blisters over the mastoid, seem to have but very slight benefit. The administration of quinine in increasing doses, as recommended by Charcot, has marked effect in removing the unsteadiness of gait; but my experience of its effect upon the tinnitus and upon the slight amount of hearing sometimes left in true Ménière's disease, is not favourable. The difficulty of inducing patients to continue taking large doses of quinine, during the early stages of which the tinnitus is greatly aggravated, and the hearing completely abolished, must not be forgotten. Subcutaneous injection of muriate of pilocarpine, as recommended by Politzer, is still on its trial, and so far without much success. More benefit is to be looked for from the use of the continuous current, together with the administration of strychnia, phosphorus, and similar tonics. (Dr. F. M. Pierce, p. 379.)

PEMPHIGUS, OR "ESSENTIAL SHRINKING OF THE CONJUNCTIVA."—At the Ophthalmological Society, on Dec. 10th, Mr. Anderson Critchett and Mr. Juler showed two patients, the subjects of essential shrinking of the conjunctiva (so-called pemphigus of the conjunctiva). One case—that of a farmer, aged 53—was of special interest, as it had been under observation from its commencement. He came under Dr. Felix Semon's care in September, 1884, on account of an affection of the right nostril, which resembled syphilitic perichondritis and periostitis. In June, 1885, he was transferred to Mr. Nettleship's care, on account of epiphora and conjunctivitis, with partial obliteration of the lower *cul-de-sac*. The conjunctiva of the upper lid was marked by scars parallel to the free border. The affection went on progressively from bad to worse in the right eye; and in August, 1885, slight conjunctivitis of the left eye was noticed. The right eye had finally become almost blind. Both eyelids were thickened, and partly adherent to the globe. Both *culs-de-sac* were obliterated; and, though the globe moved pretty freely, the lids moved with it. The lashes were inverted, and the cornea opaque and vascular. Similar shrinking of the conjunctiva had commenced in the left eye; the lashes were turning inwards; and the *culs-de-sac* were so much diminished that the lids could not be everted without difficulty. The conjunctiva was red and velvety, but showed no scars. Vision was still fairly good. The man gave a distinct history of syphilis ten years earlier. No sign of pemphigus could be discovered on the body, though the man stated that he had seen bullæ on his palate. Mr. Critchett expressed the opinion that the condition had no relation to pemphigus, but was an essential shrinking of the conjunctiva similar to that described by Gräfe (Archives of Ophthalmology, vol. xxiv.), and Bäumlér (Monatsblätter für Aug. 1885). (Mr. Anderson Critchett, British Medical Journal, Dec. 19, p. 1165.)

THE SYPHILITIC EAR.—*Diagnosis of.*—[In the British Medical Journal, Oct. 3, Dr. Woakes draws attention to the fact that persistent otorrhœa of syphilitic origin is always bilateral and the result of carious destruction of bone. He also points out how, in doubtful cases, the specific nature of the malady may be shown by the pigmentation of scars, the result of leech bites, or by noting the staining of the vaccination cicatrices in congenital syphilitics. Syphilitic caries of the internal ear, also, does not yield to simple local treatment by sulphurous acid.] (Dr. E. Woakes, p. 374.)

MIDWIFERY, AND DISEASES OF WOMEN, ETC.

AXIS-TRACTION FORCEPS.—The preference generally given to Tarnier's axis-traction forceps by some British as well as by nearly all French obstetricians over instruments such as Barnes' original double-curved or my own short forceps, appears to me to be a mistaken one. In operative midwifery, as in any mechanical problem, it is obvious that there should be a due proportion between the power used and the resistance to be overcome, and that the force employed should be the minimum necessary to accomplish the desired effect. Now, whatever may be said to the contrary, this is certainly not the case in Tarnier's forceps, which is a needlessly complicated, unwieldy, and, for the purpose for which designed, an ill-contrived piece of mechanism. Hence, in my opinion, this instrument is by no means equal to Dr. Barnes' original forceps for any cases of difficult labour where the head is detained above the pelvic brim; nor, I will venture to add, to my own short forceps in those still more frequent instances in which, after the head has entered the pelvic cavity, assisted delivery may be expedient, as I have found in upwards of 250 cases in which I have now used this instrument. (Dr. More Madden, *Dublin Journal of Med. Science*, Jan., p. 25.)

CHRONIC UTERINE CATARRH.—*Iodoform.*—Dr. Kugelmann, of Hanover, relates his experience with iodoform, which he was induced to try by its good effects on a nasal and laryngeal catarrh in his own person. His method of application of the drug is by insufflation with a metallic catheter, with lateral openings near its beak, by which the powder is taken up, and, being inserted within the uterus, it is expelled by compressing an elastic ball at the other end. The applications are made twice a week. The method is painless and free from danger, and has been very successful in the author's hands. Previous dilatation by laminaria or other tents, or by metallic dilators, may be necessary. (*Canada Med. & Surg. Journal*, Feb., p. 409.)

DYSMENORRŒA.—*Treatment of Cervical Stenosis by Forcible Dilatation.*—The operation which I can recommend most highly is that of forcible dilatation. The instruments which I use are two modified Ellinger dilators of different sizes, made under my supervision by Messrs. J. H. Gemrig & Son, of Philadelphia. Ellinger's model is the best on account of the parallel action of the blades, which dilate the whole track of the canal uniformly. The smaller of these dilators has slender blades, and it pilots the way for the other, which is more powerful, having blades that do not feather. The lighter instrument needs only a ratchet in the handles, but the stronger one should have a screw by which the handles are brought together. Lest the beak should hit the

fundus uteri and seriously injure it when these instruments are opened, their blades are made no longer than two inches, and are armed with a shoulder which prevents further penetration. The larger instrument opens to an outside width of one and a half inches, and its blades are roughened, or corrugated, by shallow grooves in order to keep them from slipping out. This dilator has also a graduated arc in the handles by which the divergence of the blades can be read off. In a case of dysmenorrhœa, or in one of sterility from flexion or from stenosis, my mode of performing the operation of dilatation is as follows:—The patient is thoroughly anæsthetised, and a suppository containing one grain of aqueous extract of opium is slipped into the rectum. She is then turned on her back, and drawn to the edge of the bed, each knee being supported by an assistant. The light must be good, so that the operator can see what he is about. My bivalve speculum being now introduced, the vagina is well swabbed out with a five per cent. solution of carbolic acid. By the aid of a strong uterine tenaculum, the cervix is steadied, and the smaller dilator is introduced as far as it will go. Upon gently stretching open that portion of the canal which it occupies, the stricture above so yields that, when the instrument is closed, it can be made to pass up higher. Thus by repetitions of this manœuvre, little by little, in a few minutes' time a cervical canal is tunnelled out which before could not admit the finest probe. Should the os externum be a mere pinhole, or if it be too small to admit the beak of the dilator, it is enlarged by the closed blades of a pair of straight scissors, which are introduced with a boring motion. As soon as the cavity of the womb is gained, the handles are gradually brought together, and allowed to stay so for one or two minutes. The small dilator being now withdrawn, the larger one is introduced, and the handles are then slowly screwed toward one another. If the flexion be very marked, this instrument, after being withdrawn, should be reintroduced with its curve reversed to that of the flexion, and the final dilatation then made. But in doing this the operator must take good care not to rotate the womb on its axis, and not to mistake the twist for a reversal of flexion. The ether is now withheld, and the dilator kept *in situ* some fifteen minutes, when it is closed, removed, and the vagina well syringed out with the same solution of carbolic acid. Occasionally a slight flow of blood will last for several days after the operation, simulating the menstrual flux. Often the flux is precipitated, or it is renewed, if the operation follows or precedes it too soon. The best time for dilatation is, therefore, midway between two monthly periods. (Dr. W. Goodell, Medical News, Dec. 12, 1885, p. 646.)

[For Dr. Goodell's remarks on the Uses and Results of this Operation, see pp. 396, 398.]

LABOUR DELAYED BY OBSTRUCTION AT THE PELVIC BRIM.—

[Dr. Sloan, of Glasgow, contributes a very important paper on the treatment of labour delayed by obstruction at the pelvic brim. Dr. Sloan addresses himself entirely to the consideration of cases where the obstruction is in the conjugate diameter—cases where, as a rule, the projecting sacrum is within reach of the examining finger. Such pelves may, of course, be the subject of other deformity, such as flattening or general contraction. Cases of the smallest degree of contraction, requiring only “patience” for their treatment, on the one hand, and cases where nothing short of destruction of the child or Cæsarian section will avail, on the other, are not regarded as within the scope of the paper; the discussion being limited to such cases as can be met by the operation of Forceps or Turning. It is, in fact, upon the relative merits of these two procedures, and upon some points in the mechanism of labour in moderate degrees of conjugate contracture, that the author of the paper makes his exhaustive and instructive criticism. In speaking of the detection of the deformity with which he is dealing, Dr. Sloan says:—“A correct estimate of the internal conjugate is more desirable than attainable, for internal pelvimeters are not of much service. But a fairly accurate estimate of this diameter may be formed by measuring with the index-finger of either hand the distance between the sacral promontory and the lower end of the symphysis pubis, and deducting from this lower ordiagonal conjugate, as it is called, about three-quarters of an inch.” The Mechanism of Labour in such cases is next dwelt upon, the main points developed being that in the “flat pelvis,” the head, when at the brim, must of necessity assume an extended instead of a flexed position, as in normal labour, or as in labour with a generally contracted pelvis; and, secondly, that the bi-parietal diameter cannot engage the conjugate of the pelvis, this second condition having a causal relation to the first. An interesting point is here made in showing that the bi-parietal diameter of the child’s head must engage what the author calls the *lateral conjugate* of the brim, an antero-posterior diameter, as its name implies, to either side of the true conjugate, the posterior pole of which will be at the inner portion of the ala of the sacrum, and the anterior pole at some part of the pubic bone immediately behind the crest. Dr. Sloan finds that in contracted pelves this lateral conjugate *measures from a quarter to half-an-inch more than the true conjugate*. The position of the head at the brim is briefly stated thus:—“The head is extended, its coronal diameter (the greatest distance between the two sides of the coronal suture) in the true conjugate, and its bi-parietal in the lateral conjugate.” The latter and greater part of the paper is occupied by a discussion of the treatment of the “delay” under review,

and at once the author proceeds to deal categorically with the well-known arguments of Sir James Simpson relative to Turning Forceps and Craniotomy in moderate degrees of pelvic deformity, and our purpose will be best served by reproducing here the author's own *résumé* of his criticism:—"Perhaps it will be profitable at this stage of our inquiry to ask you to consider with me to what my remarks, so far as they have gone, have led up. What now are we to think of Sir James Simpson's arguments in favour of version? What, if any, portion of them are we to accept? What are we to consider as doubtful, and what are we to reject as erroneous? And having settled this, what, further, is to be our practice in the future in cases of delayed labour arising from obstruction at the conjugate of the pelvic brim? We have seen that Simpson's propositions may be reduced to six, these embodying the substance of his conclusions in favour of version as an alternative for craniotomy and the long forceps. I shall tabulate them as queries, and give a brief reply to each, and then ask you to decide between us.—*First*. Is the foetal cranium of a conical form, enlarging from below upwards, the vertex being the basis of this cone? This is true *to so slight an extent* as to make it almost a distortion of the truth.—*Second*. Does the hold which we have of the protruded body of the child, after its extremities and trunk are born, give us the power of applying so much extractive force and traction at the engaged foetal head as to make it become compressed to a greater degree than would the forceps if the vertex presented? Yes, by fixing the head in the brim, and thus being compelled to pull the head in the axis of the brim.—*Third*. Is the lateral and temporary compression of the foetal head by the contracted sides of the pelvis, as after version, less dangerous to the life of the child than its oblique or antero-posterior compression with the forceps? This is very doubtful, and at any rate has, if true, never been proved.—*Fourth*. In the flat pelvis, in head-first cases, is the head necessarily flexed, so as to bring the bi-parietal diameter into the true conjugate of the brim, instead of, as after version, to one side of it? No; in the strictly flat, or the generally contracted pelvis, never.—*Fifth*. Is the duration of labour shortened by version as compared to forceps, and are the chances of the mother and child thereby increased? The labour is shortened, but the chances of the mother and child are often thereby *decreased*.—*Sixth*. Have women frequently been delivered of living children by version or breech presentations, who at previous or subsequent labours were delivered of dead children by forceps? Yes, and women have frequently been delivered of living children by forceps, or in unaided labours, who at previous or subsequent labours were delivered of dead children when the breech presented." See following article.] (Edinburgh Med. Journal, Jan., p. 648.)

LABOUR OBSTRUCTED AT THE PELVIC BRIM.—PROPOSITIONS FOR GUIDANCE IN CASES OF.—

(1.) That MERE *disproportion between the child's head and the brim of the pelvis* is NEVER a sufficient reason for preferring version to the forceps as an original choice in the combined interests of mother and child.

(2.) That cases sometimes occur in which, *for other reasons*, version is to be preferred to the forceps as an original choice; but that if the child be of presumably average size, this operation should not be attempted with a conjugate diameter under $2\frac{3}{4}$ inches, and, with such a diameter, only if it is a *justo-major* pelvis flattened.

(3.) That the following are some of the “other reasons” for preferring version to the forceps as an original choice:—The occiput to the wrong side of an irregularly contracted pelvis; occipito-posterior position in a generally contracted pelvis, which position cannot be rectified manually (or rather bimanually); prolapse of the funis; placenta prævia; face presentation; displacement or increase in bulk of the presenting part as by the partial or complete descent of a hand or foot along with the head; great inclination of the pelvic brim, throwing the head on to the pubes instead of permitting it to be over the brim; *great* difficulty in applying the forceps, or a very tight and incomplete locking of the forceps after some difficulty in their application.

(4.) That where the forceps for “other reasons” is unsuitable as an original choice, version may be tried, *not simply in the flat, but in the generally contracted pelvis also*, flexion of the head being no contra-indication.

(5.) That if version is decided on, the breech of the child, where this is at all practicable, should be allowed naturally to dilate the cervix; and that, if one leg must be brought down, the other should be left to increase, with the pelvis of the child, the expansion of the cervix.

(6.) That if version is decided on as an original operation, it ought, if possible, to be done by the bipolar method, and as soon as the os is sufficiently dilated to permit of it—the membranes being, if practicable, kept entire after version, but ruptured at once if this is necessary in order to keep the breech in its new position.

(7.) That in cases of doubt forceps should be preferred to version as an original choice. But should the pelvis be shallow, version has this advantage, that if the body be born, the child can sometimes be made to breathe though the head is at the brim. Craniotomy will also then be less difficult to perform, should this operation be afterwards required.

(8.) That in cases in which the forceps has failed there should

be some reason for suspecting other causes than disproportion (see Prop. 3) before version is attempted as an alternative to craniotomy.

(9.) That the employment of version as an alternative to craniotomy, as a routine practice, is terribly hazardous to the mother, although it probably sometimes saves the child's life.

(10.) That in a generally contracted flat pelvis, if the child be of average size, and the degree of contraction be at all great, version is entirely inapplicable. A *short* trial should be made with the forceps. If no progress be made, craniotomy should be performed at once. (Dr. Samuel Sloan, Physician to the Maternity Hospital, Glasgow, *Ibid*, p. 652.)

MAMMARY ABSCESS.—*Its Prevention.*—The application of a long strip of belladonna plaster, sixteen or eighteen inches long, and six or eight inches deep, with round apertures, so as to leave the nipples free, tightly across the chest, the breasts being brought well up towards the median line, for many years was the only resource adopted, beyond careful regulation of the diet, abstention from fluids, gentle purgation, &c. This method never failed, but it was often found that the smell of the belladonna produced so much nausea in delicate patients as to preclude the employment of it. Thinking that, in all probability, the pressure exerted contributed greatly to the advantage derived, I was induced to rely upon a few turns of a rib-bandage, or the application of a thin towel or diaper across the chest, the breast being brought well towards the sternum. Since adopting this method, I have never known it to fail. Not a single instance of mammary abscess has occurred in a long series of cases, extending over several years. The only precaution requisite is to apply the pressure on the second day following parturition, before the breasts begin to fill, and to see that the whole of the glands are included. It is well to elevate the shoulders somewhat more than usual, and not to allow the bed-clothes to cover the upper part of the chest, the sheet alone sufficing to prevent any risk of chill. Restriction as to the amount of fluid, for the first few days, and attention to the bowels, are all that is requisite to ensure success. Some little inconvenience, a feeling of tightness, or burning pain, is often experienced; but, if the pressure be maintained, no harm results, and, within the course of a few days, the turgescence subsides, and the difficulty is at an end. In order to keep the bandage or towel from slipping down, a shoulder strap from back to front, or merely pinning the bandage to the night dress suffices. (Dr. A. W. Edis, Obstetric Physician Middlesex Hospital, *British Med. Journal*, Nov. 7, p. 864.)

MERCURIAL INTRA-UTERINE INJECTIONS.—In proof of the advisability of greater caution than some may think necessary in the

use of the mercurial antiseptic intra-uterine injections, so largely employed by some obstetricians, I may here cite from the *American Journal of Obstetrics* the history, not long since reported by Dr. Partridge, of New York, of "a case of labour that had occurred at the Nursery and Child's Hospital, in which vaginal injections of bichloride of mercury, 1 to 2,000, were used, and the patient did well for three days. On the third day she had a chill, and the house surgeon gave an intra-uterine injection of the same solution. The next day there was another chill, and the injection was repeated. This was followed by bloody passages from the bowels, and death took place. Intense colitis was found *post mortem*. Dr. Partridge referred to reports of three other cases of supposed mercurial poisoning from the same cause. The patient whose case he had related died within sixty hours from the administration of the first intra-uterine douche." At the same meeting of the New York Obstetrical Society at which the last case was referred to, Dr. Partridge also related a case in which, by mistake, a nurse threw a bichloride injection into the bladder instead of into the vagina, and severe cystitis was set up—quite as much, perhaps, from mechanical violence as from any special action of the bichloride. (Dr. More Madden, Dublin Journal of Med. Science, Jan., p. 26.)

THIRD STAGE OF LABOUR.—I believe that the great facts in the natural history of the expulsion of the placenta and membranes are that they are not separated for some time after the birth of the child, that they are then expelled by uterine contraction and retraction, that the placenta is expelled from the uterus usually edgeways, and that no access of air occurs into the genital tract. In the management of a normal third stage, the patient should therefore occupy the dorsal posture, and the accoucheur should grasp the uterus with his left hand to ascertain its tone. When this is good, he retains his grasp merely to note if the uterus relaxes. When good pains come on, I do not consider it necessary that these should be helped by the practice of expression, or what is known as Credé's method. In a normal case, the risk is that the placenta, bulky as compared with the membranes, may be squeezed out too soon, and parts of the membranes left behind. When, however, the placenta remains in the uterus half an hour after the delivery of the child, expression should be tried, but only with the left hand. After some practice, one can tell whether the placenta can be expressed, or whether adhesions are present. In the former case, the accoucheur feels the uterus diminishing in bulk as the placenta is expressed; whereas, in the latter case, no impression is made on it by moderate pressure. When the placenta is in the vagina (a condition recognised by the altered shape of the uterus), but does not soon appear at the vaginal orifice, slight downward pressure in the

axis of the brim will help its expulsion. If more than slight pressure is needed, the question must then arise whether the retention is not due to non-separation of part of the membranes. The cleansed fingers may be passed into the vagina, the presenting part of the placenta laid hold of, and gentle traction in the proper axis will effect delivery. When the placenta is detained in the vagina, it is sometimes convenient to place the patient in the semi-dorsal posture, to draw down and back the posterior vaginal wall with the cleansed fingers, so as to straighten it; and then, by slight downward pressure, with the external hand in the axis of the brim, to effect delivery. In those cases where uterine action is feeble, expression is of the very greatest value. It then imitates the natural process, and places such a case on a level with the normal. The uterus should be grasped with the left hand as fully as possible, the thumb being in front and the fingers behind. It is then squeezed firmly in the direction of the line joining the finger and thumb, without any downward pressure. In partial adhesions of the placenta, or in adhesion of the membranes, the practice of expression is in the highest degree dangerous. The non-adherent portion is separated and forced down and out, while bits of the placenta or membranes are left behind, exposing the patient to septicæmic risks. When morbid adhesions exist, the accoucheur must separate them manually, using all antiseptic precautions. The hands must be thoroughly cleansed with corrosive sublimate solution (1-2000), and a vulvar and vaginal douche of 1-4000 given. After the separation, the douche of 1-4000 must be repeated, the amount of introduction of the tube depending on the extent of the internal manipulation. In this, as well as in a natural case, it is well to have the diapers used in the puerperium dipped in corrosive sublimate (1-2000), and dried, or the discharge received into sublimated wood-wool wadding. (Dr. Berry Hart, British Med. Journal, Oct. 24, p. 788.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON THE USE OF ACUPUNCTURE IN CERTAIN FORMS OF CHRONIC RHEUMATISM.

By G. LORIMER, M.A., M.D. Edin., Buxton.

In chronic rheumatism of the muscles and their fasciæ, and aponeuroses, there are usually three conditions present: 1, pain; 2, impaired mobility or muscular disability; and 3, impaired nutrition leading to muscular atrophy. The last condition is not always present, and is most marked in cases of a pronouncedly chronic character. The first two conditions may occur separately or conjointly. They may co-exist in equal degree, or they may occur each in greater or less degree.

Acupuncture may be employed with advantage for the relief of pain, for the removal of muscular disability; and, with the removal of the latter condition, muscular atrophy is usually improved. Acupuncture, however, is less certain and efficacious in the relief of pain than in the treatment of muscular disability. For the relief of the latter condition, however, as well as sometimes for the former in rheumatism of the lumbar muscles, of the muscles of the thigh, and in rheumatism of the muscles of the arm and shoulder, the effects are sometimes signally efficacious.

With regard to the last-mentioned situation (namely, the shoulder), the relief from muscular disability is most marked when the disablement is referred to a point situated in the central or lower part of the deltoid muscle. When situated in the upper part, relief is less frequent, and, when above the scapular spine, it is very seldom obtained. The certainty of relief is in proportion to the limited area of obstruction to movement; if, however, the area of obstruction to movement be extended and indefinite, success is less likely to result. In some cases, galvano-puncture succeeds when acupuncture fails.

After the removal of the needle, at the seat of puncture there frequently appears a red areola, from half an inch to two inches in diameter. The appearance of this areola bears a direct relation to the success of the operation. It is generally absent in cases where the action is inert, and the result negative.

In the removal of muscular disability, the action of acupuncture is immediate. The maximum amount of muscular power, however, obtained from its application is gradual, being from ten minutes to one hour after the removal of the needle.

It is doubtful if any benefit is obtained from retaining a needle beyond two minutes in the treatment of cases of muscular disability; more benefit is obtained from increasing the number of needles than prolonging the time of their insertion. With regard to relief from pain, however, the converse is true.

When extensive muscular atrophy is present, relief is doubtful. When the latter condition is present, and is an obstacle to improvement, galvano-puncture may succeed after acupuncture has failed. For the relief of pain, several applications may be required, each of some hours' duration. Cases which most frequently receive benefit in relief from pain, are those of subacute inflammation of fibrous tissue, myalgia, and anomalous forms of rheumatism, which sometimes attack the surrounding structures of articulations subsequent to injury. In some instances, after the application of acupuncture-needles, pain may be removed, but it may pass to the corresponding situation on the opposite side of the body.

After the application of the needle, there is generally experienced, at the point of insertion, and for some distance from it, a feeling of coldness or numbness, or a sense of prickling or heat. Syncope seldom occurs from the employment of acupuncture.

Acupuncture is less frequently followed with beneficial results in muscular disability, and muscular atrophy consequent on sciatica.

The needles employed are about two inches in length, or longer. They are set in round handles, and should be introduced with a gentle rotatory motion. Those now used by the Japanese are made of gold, which is an unnecessary extravagance. (A number of illustrative cases are given with the paper.)—*British Medical Journal*, Nov. 21, 1885, p. 957.

2.—CLINICAL FEATURES OF RHEUMATOID ARTHRITIS.

By JOHN KENT SPENDER, M.D.Lond., Physician to the Mineral Water Hospital, Bath.

To cure a disease, or even to substantially relieve it, we must understand its beginnings and trace it from its germ. The earliest symptoms of rheumatoid arthritis are subtle, and easily confounded with other things. If rheumatism be uppermost in our minds, and if we see a great deal of it, we shall call all pains "rheumatic" which infest joints and muscles. Weakness and spanæmia are the natural allies and sequels of rheumatism; and if we hear a history (however remote) of rheumatic pyrexia, we shall probably conclude that our patient's aches and stiffness are only renewals of old troubles. Thus is the veil woven which blinds the clinical vision, and we ourselves are the artificers who weave it. How, then, are we to identify rheumatoid arthritis in its early simple phase, so that we may steal a march upon it and prevent its development?

Putting aside for a while the academic distinctions of the acute, chronic, and irregular forms, we search for the ideal picture. A woman (rich or poor, it matters not) has gone through much childbearing, or has endured a long lactation and perhaps more leucorrhœa, or has been the victim of bodily privation and mental anxiety. One morning she awakes and feels a pain in her wrist; she thinks that she must have twisted or overworked it; she blames the weather or a hundred trivial things, and she winds up her random meditations by calling it "only a little rheumatism." Or there is pain in and among the carpal bones; there is effusion in the synovial sheath which surrounds and guards these bones; the hand looks thicker when held up and viewed sideways, and it cannot be easily opened and closed. Or there are tenderness and tightness in the palm, so that the hand involuntarily shuts when left to itself to relieve tension of the palmar fascia. Perhaps the lower limb suffers first, and the patient cries, "I have something wrong in the hollow of my foot; there is pain every time I bend the instep when walking up and down stairs." Next the ankle swells, and the difficulty of walking increases. An unwary doctor says that the ankle "has been sprained," and he may order cold douches with other very inappropriate remedies. But the supposed injury does not get well, and presently there is a puffiness around and above the malleoli, with an increasing lameness and weakness in the limb. Then, strange to say, instead of going straight to the knee, the disease may fly to an upper limb, crippling in rapid succession fingers, wrist, and elbow. Sometimes the fingers are swollen, reminding us of erythema or chilblain; and more often the first and second metacarpo-phalangeal articulations are early and severely affected. A very characteristic feature is the quick and obstinate flexion of the elbows; and now and then we see cases in which a shoulder or hip is the single joint involved and permanently injured. But there is a group, not numerically small, in which the ruin of joints is subordinate to an intense and cruel neuralgia, flitting about over nerve-threads and nerve-centres, murdering sleep, crushing the functions, creating a misery and a weakness which smother all the joy of life, and even overthrowing the intellectual and emotional faculties, so that the issue thereof may be insanity and suicide.

It is quite true that the arthritis we are considering may be the sequel of an injury; such an injury, I mean, as may occur in the routine duties of domestic life, and be deemed hardly worthy, perhaps, of medical care. The accident is forgotten by lapse of time, but the weakened joint structures are more vulnerable to pathological storms. When disease comes, its effects may not be separable in outward guise from the injury which went before; and it must be remembered that a joint which has been once dislocated is an easy prey to rheumatoid arthritis. Then this

disease so often follows rheumatic pyrexia that the one may seem only a postscript or appendix to the other; but this postscript is different in substance and in form, although its gross physical result is merely an increment of previous shock and damage. In our Mineral Water Hospital we see many mixed forms of this kind, in which true gout or true rheumatism began the sequence of morbid changes; and it has been only after years of privation and toil that the later degenerative changes have set in, ruining finally and completely those joints which were partially spoiled before. Another matter of interest is this: The joints which have been most actively engaged by the special craft of the patient, whether this be husbandry or carpentry, needlework or washing, are usually the first to show signs of arthritic deterioration. The complementary forces of hypertrophy and atrophy have been stirred, synovial secretion becomes muddy, cartilage is torn to shreds, bone is ground down to its primitive elements, and all because the mill so seldom stops; the mangle, the spade, and the needle go drudging on without that rest which is not less physiological than moral. Once more. The etiological alliances of rheumatoid arthritis are many and far-reaching. The disease may have for its companions nearly every form of degradation which can beset animal tissues. In the dulness of a clinical fog we sometimes drift about, and can get no further than a provisional guess of "arthritis"—a guess which almost anyone can make; and then it is that the textural behaviour of eyes, hair, skin, and teeth becomes a valuable landmark, and offers material for a safe diagnosis. Nor are the important viscera less worthy of attention than the dermal appendages. So that, although the arthritic phenomena may appear mixed and intertwined beyond all unravelling, there are generally some salient features which proclaim that the "rheumatoid" type of disease is the dominating one, giving a case a distinctive name and determining our views of its prognosis and treatment.

I have tried to enumerate the various points which help us to identify a disease which for obstinacy and intensity has its analogues among the malignant nosologies. But even a so-called cancer has one comparatively benign aspect, which is this: if totally rooted out in a stage which has been called local, in so far that there is no apparent poisoning of the fluids of the body, there may be a positive end to it, and neither itself nor anything like itself may ever return. On the other hand, a disease which is multiple almost from the beginning, by reason of many bones and many joints, creeps and lurks about we hardly know where; if ousted from one ground of vantage, it retreats to another only a little further away: the cunning marches of a vegetable parasite are not more difficult to follow. Here, then, is our plea for early battle with a merciless enemy. Pure rheumatism and pure gout differ from that enemy profoundly in their susceptibility of control

by therapeutic effort. Even when joints are badly injured by erratic gout and repeated rheumatismal attacks, there is a wide scope for recovery if bony ankylosis and adhesions among the soft structures have not gone beyond a certain degree. But a joint, big or small, wrecked by this rheumatoid disease, is the despair of medical art according to our present knowledge. It is very pitiable when the vertebræ are so mortared together that the trunk moves like a rigid machine, when the head cannot nod or turn to either side, and when the lower jaw is so nearly motionless that food cannot be properly received and masticated. And if, in addition, the lower limbs are crippled so that support and the power of locomotion are destroyed, the general health suffers from lack of exercise, and the nervous system is prostrated by the sense of incurable helplessness.—*Lancet*, March 6, 1886, p. 440.

3.—EARLY TREATMENT OF RHEUMATOID ARTHRITIS.

By J. KENT SPENDER, M.D.Lond., Bath.

The subject of treatment is bright or dark according to circumstances—very bright if we have faith in our work, if the disease be in an early stage, and if we will take endless trouble to prevent a small spark from becoming an unmanageable flame. The therapeutics of rheumatoid arthritis is encouraging if we rightly estimate the proportion of general and local treatment, if the social and hygienic surroundings of a patient be favourable, and if we can secure the help of intelligent relatives and sensible nurses. When the nature of a case is clear, and the gravity of the coming evil plainly seen, it is downright treason to hide or to minimise it. Our duty is to be truthful, and at the same time it is a privilege to be hopeful; and in this spirit we shall best undertake what we are going to do.

Local treatment I put without hesitation in the foreground. By this is meant, not that in the long run the local treatment is the more important, but that we ought to begin with it, because time is urgent, and because in this manner we can make the earliest and deepest impression. Here is something wrong (call it what we will) in structures near the surface of the body; it is reasonable, it is almost certain, that we shall first influence this evil tendency by corrective discipline applied closely to the parts affected. It is easy to write with an air of learning about counter-irritation, although we know little about it as a theory; but there can be no doubt of its power as a piece of therapeutic work. Almost alone among recent writers has Dr. Mitchell Bruce advocated the necessity of vigorously striking home on the joints themselves. It is satisfactory to quote a good authority in favour of a practice which I have followed for ten or twelve years. But the laws and limits of counter-irritation must be stringently observed. To put a cantharides blister all over a joint, or to paint the whole exterior of a joint

with liniment of iodine, is to commit a grave therapeutic blunder. The antipathies of resentment are stirred in the vaso-motor apparatus under the skin, and the immediate harm overshadows all possible future good. Mr. Furneaux Jordan's rule is plain and wholesome physiology. "Put your irritating agent," he says, "on the circumjacent skin, or, in other words, the neighbouring nerve and vascular territory." The artificial hyperæmia thus created draws away perverted force from the diseased area, and helps to restore an equilibrium. Paint a ring of *linimentum iodi* around the lower part of a thigh, two fingers' breadth away from a threatening "rheumatoid" knee; let the ring be one inch and a half wide; renew it every two or three days, according to the coarseness or delicacy of the skin. Paint a similar ring below the knee, renewing it, not at the same time, but alternately with the ring above. If a cantharides blister be applied, let it be always on the cardiac side of a joint; and the blistered surface should be allowed to heal immediately. Another excellent method of counter-irritation is the frequent sponging of the affected joints in the earliest stage with water as hot as can be borne, the calorific edge of the heat being blunted by covering a joint with flannel or layers of muslin.

Many are the fine degrees and finer shades of what we call counter-irritation, and the method of using it should be always of the slow and quiet kind. Turpentine and its congeners are incendiary drugs, kindling a rapid fire which can be seldom kept within modest bounds. But there is a more generalised and tranquil method of so-called counter-irritation, which consists of immersing the whole body in hot or tepid water. The Bath thermal waters owe much of their repute to the well attested faculty of alleviating the medical group of joint disorders known as rheumatic, gouty, and osteo-arthritic. There is something in natural thermal water which confers upon it unique therapeutic power; for when stripped of the accessories of change of air and scene, of recreation and rest, a residual virtue is discovered which baffles the most searching inquisition. Thermal medicine is a matter of experience and tact; but this point stands out beyond all cavil, that the machinery of thermal bathing is successful in exact proportion to its early use. When proper means have been neglected at the proper time, then that stupid hope which leans upon anything will build castles in the air, and imagine a natural magic in ores, herbs, and waters. From this indolent delay there is often a cruel awakening. But if the regimen of a thermal spa be accepted and obeyed when a rheumatoid arthritis is in its dawn, if the twilight beginnings of a destructive disease are grappled with bit by bit, and hands are joined all round to beat back the foe, we may sometimes win the day when we least expect it, and add laurels to the honourable warfare of medical art.

Douching and shampooing are therapeutic kinsfolk to bathing, and (as a rule) all should go together. "Wet douching" is preferable when joints are sensitive and muscular action is attended by labour and pain. But for rousing structures out of drowsiness, and for stimulating them when afflicted with vital apathy, few agencies are so useful as "dry" hot and warm douches (the body being out of water). The thermal arrangements in Bath have been lately much improved; and a room has been attached to the "Queen's Baths," in which all the best appliances of Aix-les-Bains can be enjoyed, with foreign *doucheurs* and *doucheuses*. Shampooing is a technical mystery which cannot be too highly praised. The younger the patient who is menaced with rheumatoid arthritis, the more important does it seem to carry out stroking (*effleurage*) of the joints and tender kneading (*petrissage*) of the neighbouring muscles. The limbs should be always in the least constrained posture, and the application of bandages and laced supports will test the surgical instinct of the "wise physician." It cannot be said that the external use of drugs does any good; but I have been long accustomed to order the mild inunction every night of the iodide of potassium and soap liniment.

Climate is an element of soothing and healing value. To avoid the English winter and spring sounds disloyal; but to those who can afford it the sacrifice is imperative, and aliens they must be for six or seven months in the year. Between November and May residence should be taken up on the Mediterranean sea-coast, or part of the time may be spent in a sub-tropical sea voyage. This may need to be repeated every year for several years before complete success is obtained. Rheumatoid arthritis is a disease *par excellence* of the north temperate zone. But as the vast majority of people can only dream of the Mediterranean and the luxuries of Algiers and Egypt, they must learn to do the best for themselves in their own country, and to live in a dry and not too cold part of England; out of the "search of the glacier wind," says Mr. Ruskin, and as much as possible in the "rays of the rare sunshine." Internal medicines capable of doing good may be divided into two classes:—(a) Those of unquestioned efficacy, because of their obvious physiological appropriateness; and (b) those of secondary utility, but helpful according to their mode and measure of administration. In the front rank of the first class stands cod-liver oil, food and physic together; if begun in small quantities with pancreatine or orange wine, it may be pushed discreetly until half a pint is consumed every week. This must be continued for months, perhaps for years, omitting the middle of the summer; and it is a merciful plan to allow a holiday from all drugs once a fortnight. Citrate of iron (five or six grains) and iodide of sodium (two or three grains) may be dissolved and given together in chloroform-water once a day. Among our pharmaceutical resources of lesser importance are

strychnia, arsenic, and syrup of the iodide of iron. When arsenic agrees, it may rise to the dignity of a valuable medicine, and there is no reason why it may not be given with the iron and cod-liver oil. Syrup of iodide of iron has been extolled by several writers, and is certainly a model of quiet harmlessness.

Countless hygienic rules may be laid down, and it will be a happy chance if our patient obeys half of them. Rooms well ventilated night and day; the steady morning and afternoon trudge out of doors, to keep muscles and joints from stagnation, and to promote the "metabolism" of effete stuff from the body; plenty of sun and sea; clothing adapted to the ever-shifting stress of weather; and meals of varied and well-cooked food. And if the mind and the affections be rightly guided, what more can we do? In short, what we call the prophylaxis of cerebral and pulmonary consumption is the most rational way of warding off the diathetic state which leads to rheumatoid arthritis. The victories of preventive medicine have only begun to be unfolded. When the hands and feet are the members first attacked, and the fingers are early disabled by pain and swelling in the smaller joints, the regular application of galvanic electricity may be tried. I cannot say much in its praise, and the therapeutic uncertainty of electricity has now become almost a proverb.—*Lancet*, March 13, 1886, p. 482.

4.—ON THE CAUSES OF DEATH IN SCARLET FEVER.

By HENRY ASHBY, M.D., M.R.C.P., Physician to the Hospital for Sick Children, Manchester.

[Dr. Ashby, in an important paper upon "Some Points in the Pathology of Scarlet Fever," examines in detail the causes of death from this disease in the cases admitted into the Children's Hospital during the four years ending Dec. 31st, 1884,—681 cases in all, of which 83 were fatal, giving a mortality of nearly 12·2. Dr. Ashby's first table shows the number admitted at the various ages, and the deaths (the table is not reproduced here for want of space). In commenting upon this table, he says:]

These figures are interesting as *showing that the mortality from scarlet fever decreases as the age of the patient increases*; thus, under four years of age the mortality varied from 26 to 50 per cent., though, judging from the number of admissions, the susceptibility to the fever increased with the age, as more patients were admitted between the ages of four and seven than at any other period. With regard to patients under one year it is possible that there were more of these kept at home by the parents not being willing to send them to hospital than at any other age. Still I think it is a fact that infants under a year do not commonly take the fever, but when they do the mortality is high.

[The second table of the days on which the cases proved fatal shows, as Dr. Ashby says, that]

The end of the first week was the time when a fatal result most often occurred. Most of such cases were of a malignant type, the fever being high, the throat complications severe, and the depression of the whole system very great. Such cases were quickly fatal, in spite of stimulants freely administered, quinine and other antipyretics, and "packs." No case was admitted that died before the fourth day. That such cases do occur is certain, but they rarely come to hospital, being moribund before they are reported, or perhaps even recognised as scarlet fever, and too ill to be removed from home; but they are few in number.

The fatality still continued, though in lesser degree, through the second and third weeks, and then rapidly declined. The fatal cases during the second and third weeks were mostly from septicæmia, the result of the foul sloughing process going on in the throat, and accompanied by cellulitis, pleuro-pneumonia, and septic nephritis. The cases fatal after the end of the third week were mostly from nephritis or its complications.

[The author then proceeds to consider some of the most important features of the severe and fatal cases as follows.]

Throat Complications.—In all the more severe cases there was much exudation, ulceration, or actual sloughing of the tonsils or soft palate. The breach of surface caused by the sloughing of the soft palate in many cases was very considerable, commencing as a greyish patch on the velum palati, to be followed by a perforation which gradually enlarged until much of the soft palate was destroyed. In the few cases which recovered much cicatrisation took place. It is important to remember that such perforating processes may involve important vessels. Thus, in one case (Eliz. M——, aged four years), admitted after a month's illness with extensive ulceration of the fauces, an ulcer opened into the external carotid, near the origin of the lingual, giving rise to speedy death from hemorrhage.

Larynx.—In four cases the inflammatory processes present in the throat involved the epiglottis or larynx. In two cases the laryngeal symptoms were severe, and the dyspnoea became so threatening that tracheotomy was performed with temporary relief in one case, the child surviving twenty-four hours, but in the second case the patient never rallied after the operation. As laryngeal obstruction only occurs in severe cases, which are moribund or at any rate almost certainly fatal, tracheotomy is not often required, and, if performed, will probably only stave off the fatal issue for a few hours.

Lungs.—It is only to be expected that in patients suffering from sloughing throats and septicæmia the lungs should join in the in-

flammatory process. So common is this complication in children dying during the second or third week with much ulceration or sloughing of the fauces, that it is exceptional to find the lungs free from pneumonia. In such cases the bronchi are found injected, choked with semi-purulent mucus down to their smallest ramifications, and there is catarrhal pneumonia either in patches, or generalised, so that one or both bases are semi-solid. It is very common for the consolidated patches to degenerate, becoming cheesy or purulent, small abscesses being formed around the terminal bronchi, and also forming near the surface, immediately beneath the pleura, small yellow spots, which, when pricked, yield a drop of thick pus. These are the *graines jaunes* of French authors. Instead of the catarrhal pneumonia it is common to find a pleuro-pneumonia, the surface of one or both lungs being covered with thick lymph, more or less cloudy fluid in the pleural cavity, and the lung itself solid and of a purple or plum colour. In other cases embolic pneumonia may be present, or small pyæmic abscesses from the size of a marble to a walnut. Pleuritic effusion in any quantity is not common.

Nephritis.—There is no sequela of scarlet fever which can vie in interest or importance with nephritis, and at the same time about which more confusion has existed. The writers of 10 or 15 years ago described scarlatinal nephritis as an “acute desquamative” or “tubal nephritis,” which supervened during the third week, and which consisted essentially of a catarrhal process in the tubules, in which the epithelium underwent fatty changes, and was shed into the tubes. Succeeding writers described interstitial changes, such as the effusion of leucocytes from the vessels, hyaline degeneration of the intima of the arteries in cases dying early in the disease, and then these interstitial changes were heralded forth as being peculiar to scarlatinal nephritis. Other observers discovered changes in the glomeruli, and glomerular nephritis was considered to be typical of the affection following scarlet fever. The confusion has arisen largely from confusing two different forms of kidney lesion, which differ essentially from one another, which are found at different stages of the fever, and only related inasmuch as the changes produced by one probably predispose to the production of the later form. The two principal forms consist in (1) *septic or interstitial nephritis*, which occurs during the course of the fever, more especially during the second week, and is found in its most typical form in those cases dying during the second or third week with sloughing throats, cellulitis, and pleuro-pneumonia; (2) *the post scarlatinal, or glomerular nephritis*, which occurs for the most part during the third or fourth weeks, and in which is mostly found changes in the glomeruli. Still I do not think that these changes are an essential feature in the disease, though nearly always present in cases of some standing.—*Medical Chronicle*, Dec. 1885, p. 182.

5.—TREATMENT OF AGUE AND ENLARGED SPLEEN WITH DECOCTION OF LEMON AND OTHER KINDS OF CITRUS.

By E. BONAVIA, M.D., Brigade-Surgeon Indian Med. Dept.

[In *Retrospect*, vol. 91, page 15, will be found a notice by Dr. Lauchlan Aiken of Dr. Maglieri's method of preparing lemon decoction, and his experience of its use as an antipyretic in ague and other fevers. Dr. Bonavia, after detailing a number of experiments made with "*Khatta*" (sour) oranges and lemons, has arrived at the following conclusions.]

1. For simple intermittent fever, without any other complications, the decoction of lemon and of the "*Khatta*" orange is as good a febrifuge as quinine, and acts with rapidity, even in tertian and quartan fever.

2. In cases of weakness and loss of appetite after fever, the effect is even more quickly developed. It shows itself after the second dose, improving the appetite and digestion, and diffusing vigour through the nervous and muscular systems. I tried three kinds of sour citrus in such cases, and they appear equally good.

3. In cases of *recently* enlarged spleens, even when of three or four months' standing, these decoctions (excepting the fluoride of ammonium, which is equally good) are the best splenifuge I am acquainted with.

4. When the spleen is *very* large, and of *years'* standing, it takes a prolonged treatment to reduce and soften it. In such cases, probably neither the decoction of citrus, nor any other remedy known, will make it entirely disappear—that is, reduce it to its normal size. To test the value of these decoctions in very large and old spleens, such as we often see in natives of India, it would require that the patient should voluntarily submit to the treatment for some years.

It would appear that we have in the genus citrus a remedial agent for intermittent fevers and their consequences, of much potency. If chemists could be induced to take up the subject and endeavour to extract the medicinal principle in some cheap form, a new departure in febrifuges and splenifuges might be brought about. The raw material can be grown everywhere, and at the present time, owing to competition and low prices, it is said that the fruit is allowed to rot on the trees in Sicily, because it does not pay the growers to pack and ship them to other countries. Here is a grand opportunity for utilising such wealth of raw material, and work it into some cheap form of portable and durable febrifuge. Probably, it would not only utilise the superabundant fruit of the world, but would give a new start to manufacturing chemists, and a new market for oranges and lemons. It would be interesting to find out whether this medicinal agent exists ready-made in the fruit, or is brought out by the boiling citric acid on the essential oil

and bitter principle of the rind; whether it exists only in some citrus, or in all the fruit of the genus; whether it also exists in the leaves, bark, and wood of the trees, and so forth. It appears a remedy of so much value that I hope someone may be induced to take up the subject, and work it out. All the foregoing experiments were made with the fresh fruit taken from the tree.—*Provincial Medical Journal*, March, 1886, p. 109.

DISEASES OF THE NERVOUS SYSTEM.

6.—ON SUBACUTE ANTERIOR SPINAL PARALYSIS IN THE ADULT.

By DYCE DUCKWORTH, M.D., F.R.C.P., Physician to St.
Bartholomew's Hospital.

[Dr. Duckworth's remarks, which appear in the form of a clinical lecture, are based upon a case of unusual interest, not only on account of the rarity of the pathological condition apparently underlying it, but also on account of its completely successful issue. The following is a brief abstract of the leading features of the case. A turncock, twenty-three years of age, free from any appearance or history of past syphilis or plumbism, three weeks before admission into hospital, began to suffer from numbness and "pins and needles" in the right foot, followed by stiffness of the leg. The left leg and both arms were soon affected; there was rapid wasting of all the limbs, and five days before admission he was unable to walk. Sensation was everywhere natural; the knee jerks were absent. Fibrillar contractions were seen in all affected muscles. The electrical reactions were quite normal. Thus, to recapitulate, the main points of the case were rapid generalised muscular wasting, with corresponding loss of power, the sphincters being exempt, and no serious implication of the sensory function. The treatment consisted in strict rest in bed, the administration of extract of belladonna in increasing doses until six grains were being taken daily, and the systematic use of the constant current. Later on, the belladonna was replaced by Easton's syrup. Frictions to the limbs were also employed. After showing the man, vigorous and strong again, to his class, Dr. Duckworth remarked:]

I have not hesitated to call this a case of subacute anterior cornual myelitis. We may be sure that no other tracts in the spinal cord were affected, or there would have been other and graver symptoms, such as sensory troubles in greater degree than he had, loss of power over the sphincters, and, above all, bed sore. And we may further believe that the parts of the cord chiefly involved were in the cervical and lumbar enlargements. It is noteworthy that the disorder began in the legs and ascended to the arms later; also that the parts recovered in inverse order, the arms regaining power first. The condition of the kidneys was

remarkable. Albuminuria was fugitive. We must suppose that there was some degree of nephritis present, for casts of the tubes were found.

Most of you are aware that a disease of the cord closely akin to that we have now been considering is not very uncommon in children, the term infantile or essential paralysis being applied to it. This disorder was long recognised before its intimate pathology was made out. Of the pathogeny of it, both in the child and in the adult, we are still in ignorance. This much is certain, that the disease seems to attack robust children and adults, and not those who by any obvious delicacy or vulnerable constitutional state might seem to be predisposed. Several names have been applied to this disease; you will find it described as polio-myelitis or tephro-myelitis, anterior, and anterior cornual myelitis. The morbid anatomy is probably the same at both ages. After thirty-five years of age you must not expect to meet with it. In children it is common for one or two limbs only to suffer; in adults there may be, as in this instance, more general implication of them. Recovery appears to be more common, and more complete also, in subacute cases in the adult. At the onset febrile symptoms have been noted, but not always. In children there is often pain in the back or limbs, simulating rheumatism or other joint-disease, probably due to hyperæsthesia. The paralysis is sudden and swiftly spreading, and groups of muscles in different limbs may be attacked by acute wasting. Faradaic contractility is rapidly lost, and the paralysed parts become cold. If no recovery occurs, the limbs fail to grow properly, and various forms of club-foot may ensue. In the adult such results do not of course occur. In the subacute form of anterior spinal paralysis we may believe that the congestive or inflammatory process, if it be such, does not attain the same degree of activity or so profoundly affect the integrity of the ganglionic cells of the grey matter of the anterior horns of the cord. There are doubtless several grades of intensity of such a process, and we may fairly assume this to be so when we find that recovery is not infrequent in cases of this kind. It is not possible to imagine that complete or grave destruction of the ganglion cells can have occurred when gradual restoration of function sets in and the consequent paralysis passes off, but such must have taken place in the class of cases where little or no improvement follows either after treatment or lapse of time. A case somewhat similar to the one I have related to you recovered lately under the care of my colleague, Dr. Andrew, the electrical reactions not being abnormal in that instance. We seem to need further observations on the exact electrical conditions present in these cases.

What are the therapeutical indications? It may be said that the disease is in many cases self-limited. It has its natural history, progresses so far, and tends to recovery.

I used belladonna in this case very freely. Brown-Séquard has encouraged us to employ this drug, believing that it is capable of controlling inflammatory processes in the spinal cord. Whether it is really of avail in this manner I cannot tell you. Professor Fraser has shown that it is a drug possessing very remarkable powers over the cord. It may have had no share in the recovery, but I am inclined to believe it had.

I think, however, that we must also attach much importance to the electrical treatment applied to the muscles in the form of the daily use of the constant galvanic current. This certainly promotes their nutrition. So soon as amendment fairly set in, I had recourse to tonic and stimulant drugs as combined in Easton's syrup of the phosphate of iron, quinine, and strychnia; and with this, cod-liver oil, and good diet, the general nutrition of the man was certainly well-secured. The result has been eminently satisfactory.—*Lancet*, Nov. 14, 1885, p. 891.

7.—ON THE DIAGNOSTIC VALUE OF "TENDON-REFLEXES" IN TABES DORSALIS.

By W. R. GOWERS, M.D.,²F.R.C.P., London.

[Dr. Gowers, after discussing the physiological aspect of "myotatic irritability," as he prefers to designate the condition upon which the so-called tendon-reflex movements appear to depend, proceeds to state the conclusions at which he and most other observers have now arrived in regard to the clinical significance of the various modifications of these phenomena.

In the course of Dr. Gowers' paper, which it need scarcely be said may be readily accepted as an authoritative statement of the present position of this important question, the diagnostic value of the tendon-reflexes in locomotor ataxy, diphtheria, and in the so-called hysterical paralyses, together with some less important considerations, is fully debated. Touching the tendon-reflex phenomena in Locomotor Ataxy, Dr. Gowers says]

What is the value of the loss of the knee-jerk when other symptoms are so slight that by themselves they would not even suggest the disease? The question really involves another: Is the knee-jerk ever absent in health? It certainly varies under normal conditions. It may be slight and difficult to obtain, and *a priori* we should therefore expect that the diminution may go on until an actual vanishing point is reached; but, so far as my own experience goes, I have yet to be convinced that the sign is ever absent apart from disease. By using care to secure perfect absence of voluntary contraction in the muscles, and favourable conditions for the movement of the leg, I have not for some years failed to obtain it in any healthy individual. I have thus obtained it without much difficulty in persons in whom it was said to be absent. Hence I

look with some doubt on the assertions that have been made—such, for instance, that it is absent in a certain percentage of healthy individuals. I include myself in my doubt, for some years ago I described its occasional absence, and the constant tenour of my experience since then has convinced me that my first observations were imperfect. I am therefore disposed to attach great weight to the loss of the knee-jerk, even when other symptoms are extremely slight.

On the other hand, does the presence of the knee-jerk exclude tabes? That question must, I think, be answered in the negative. (1) In cases in which ataxy and weakness come on together, in which there is reason to infer the presence of both lateral and posterior sclerosis (a concurrence that has been proved post mortem), the myotatic irritability is constantly preserved and usually exalted. I may point out, in passing, that this fact is very suggestive. Why should posterior sclerosis abolish the knee-jerk in one case, and in another should not even lessen the excess due to the lateral sclerosis? I have suggested that the difference may depend on the exact seat of the posterior sclerosis; but is it not possible that the difference may be due to the affection of the peripheral nerve-endings in pure tabes and not in the combined form? May not this peripheral change in the muscle-nerves, and not the central change, be the common cause of the loss of the knee-jerk in this disease? Further, in the early stage of true tabes I have two or three times seen the knee-jerk present on one side or on both. I have watched its gradual loss, and in one case I watched its gradual return under treatment. Therefore we must admit that the presence of the knee-jerk does not exclude locomotor ataxy.

Two cases of early tabes recently came under my notice in which there was a peculiar source of difficulty in determining whether the knee-jerk was lost or not, and in each case the question was of great importance in the diagnosis, on account of the uncertain significance of other symptoms. The difficulty is rather complex, and I must for a moment revert to generalities. Although I do not believe that these contractions are due to the stimulation of the nerves of tendons, we cannot doubt that tendons have nerves, or at least the doubt cannot survive a vigorous pinch on the tendo-Achillis. These nerves may probably be stimulated by a blow, and certainly the blow on the tendon stimulates the nerves of the skin over the tendon. This stimulation may cause a true reflex action, which may coincide with a local contraction. This fact has long been known. I say "may coincide," but some years ago I published measurements showing that the interval between the stimulation and the reflex action is several times longer than that between the tap and the local contraction, although the time is so short that it is only when both occur that the difference in interval can be appreciated by the eye. In the cases of tabes to which I

allude the knee-jerk was, I am convinced, absent, and yet the tap on the patellar tendon sometimes caused a contraction in the extensors of the knee, very like that of the true knee-jerk. But, from the following considerations, I believe this was a true reflex action, and not the ordinary knee-jerk. (1) On many attempts to obtain the jerk, attempts made under the most satisfactory conditions, no movement could be obtained. (2) The contraction excited was more often in the flexors of the knee than in the extensors, and often it was in the muscles of the opposite leg. (3) Exactly similar contractions could be produced by a sudden prick of the skin over the tendon or the head of the tibia. It is not very uncommon for the cutaneous reflex action to be in excess, and even in great excess, in early tabes, when the myotatic irritability is entirely lost. It is in these cases that this difficulty arises. Thus the distinction between the local and reflex contractions is not a matter of merely theoretical interest; it is occasionally of considerable practical importance. The local contraction may be lost, but may be simulated by a true reflex action.—*Lancet*, Nov. 7, p. 840.

8.—THE DEEP REFLEXES IN HYSTERICAL PARAPLEGIA.

By W. R. GOWERS, M.D., F.R.C.P.

[At the Medical Society, on Nov. 2nd, 1885, Dr. Gowers opened a discussion upon the diagnostic value of the so-called Tendon-reflexes. In the course of his address Dr. Gowers made the following remarks upon Hysterical Paraplegia.]

The diagnostic difficulty that most frequently presents itself is the distinction between this and spastic paraplegia, and the most important question is, how far can we rely upon the foot-clonus as affording us the means of distinguishing between these diseases? Regarding the state of these phenomena in functional paraplegia, certain facts may be stated with confidence:—(1) In many cases the myotatic irritability is perfectly normal. (2) In many other cases there is distinct although slight excess; the knee-jerk is increased; it can be obtained from above by depressing the patella and tapping the depressing finger—always an indication of excess; the front-tap contraction in the gastrocnemius can be obtained, but there is no clonus. (3) When there is persistent hysterical contracture in the calf muscles, a clonus can often be obtained; these cases present no difficulty, because the contracture is obtrusive and unmistakable, and the clonus depends upon this: it is like that which occurs in health in standing for some time on tiptoe, and does not necessarily indicate any excess of myotatic irritability. (4) It is very common to obtain in these cases what I have termed a “spurious foot-clonus”—a bad name, but the best I could think of; this is due to a voluntary contraction in the calf muscles—a contraction that is, as it were, the patient’s response to the passive

flexion of the foot; after you have pushed up the foot it is distinctly pushed down again, and then a clonus commences; you notice that the muscular contraction varies from time to time, and that the position of the foot varies, and that the clonus varies with it. It is this variation and its obvious dependence on the voluntary contraction—a dependence more readily realised than described—that distinguishes this from the uniform, true, involuntary clonus. This spurious clonus occurs chiefly, I think, when there is slight excess of myotatic irritability. It is very characteristic, and is a most important diagnostic sign of hysterical paraplegia.

Does a true uniform clonus occur, such as is common in lateral sclerosis? It would be wrong to deny the possibility of such a clonus, since it is simply a question of the degree of excess of this irritability, and we have seen that some excess is often met with. But I have never seen an unquestionable instance of it, and I have only seen one case that presented such a clonus, and in which I was in doubt, from the other symptoms, whether it was hysterical paraplegia or not. I daresay some observers would assert that they have seen such a clonus in purely hysterical cases, but I would urge that before observations can be admitted as scientific evidence more than a mere diagnosis is required. The cases need to be watched for a long time. I have in mind now two cases, both paraplegic girls, in which a true clonus was present, and in both cases a diagnosis was made by physicians whose opinions are entitled to the very highest respect—a diagnosis, in spite of the clonus, of functional paraplegia. I have no doubt that those physicians regard those cases as confirming the opinion that a true clonus occurs in hysterical paraplegia. Those cases came under my care; I heard the opinions that had been expressed, and I had the opportunity of watching the cases for many months. After a time it was impossible for anyone to entertain a doubt as to the existence of organic disease. Extreme spasm developed in the legs, and the ultimate state was the typical condition of severe spastic paraplegia of organic origin. Thus, while I would not deny the possibility of a true clonus in so-called hysterical paraplegia, I think the evidence of it should be very carefully scrutinised, and I think that, to say the least, it is so rare that it does not materially lessen the practical value of the sign in diagnosis. We ought never to depend in diagnosis on a single sign if others are forthcoming; but I am sure of this, that if a diagnosis were made in a considerable number of cases on two different principles, one set on the principle of disregarding altogether the clonus, and the other set on the principle of exclusive attention to this symptom, declining to regard as hysterical any case that presented a true clonus, and if the spinal cord in each case could be examined under the microscope, the errors in diagnosis would be found to be ten times as numerous in the first class as in the second.

It is important to remember that recovery does not establish the hysterical nature of a case. True splastic paraplegia may get well. I do not say that true lateral sclerosis may get well. I think it is probable that, in the cases of this kind that recover, the disease is in the elements of the grey matter in which the lateral fibres end, which are intermediate between the lateral fibres and the muscle centres, which degenerate with the lateral fibres in secondary degeneration, and which I have assumed to exert a controlling influence over the muscle-reflex centres. The symptoms of such disease and those of lateral sclerosis will necessarily be the same. I think it is possible that in some cases of lateral sclerosis these structures are the first to suffer. The effects of ether and chloroform, if my explanation is correct, show that these structures possess a peculiar susceptibility.

Another important fact concerning which, I think, there will be little difference of opinion, is that any change in myotatic irritability that accompanies what we call functional disease is, as a rule, equal on the two sides; and if there is a distinct difference between the two sides, even if this difference is slight, it increases the probability that there is more than functional disease. I have many times found the guidance thus supplied of great practical value. It is often useful in cases of paralysis of the arm. I do not think that in the arm the condition of these phenomena receives as much attention as it deserves, or that the help they are capable of giving is so often utilised as it might be. An elderly woman, for instance, had sudden weakness of one arm, and the diagnosis lay between a partial palsy of cerebral origin and one of the strange functional palsies to which workers with the arms, especially women, are occasionally subject. There was a very marked excess of the myotatic irritability in the affected arm. A tap at the wrist caused a sharp muscular contraction, while on the other side a similar tap had no effect. Such a unilateral change affords strong presumptive evidence of the existence of organic disease, and is, I believe, a conclusive symptom under such conditions as were present in this patient.—*Lancet*, Nov. 7, 1885, p. 840.

[See also 'Functional Diseases of the Nervous System,' in the *Synopsis* of this volume.]

9.—ON REFLEX-ACTIONS, KNEE-JERKS, AND MUSCULAR IRRITABILITY IN TYPHOID FEVER, PHTHISIS, AND OTHER CONTINUOUS FEVERS.

By ANGEL MONEY, M.D., M.R.C.P., Assistant-Physician to the Great Ormond Street Hospital for Sick Children, London.

For four years past I have taken almost every opportunity of investigating the state of the reflex actions, knee-jerks, and muscular irritability in various diseases, but more especially in

typhoid fever and phthisis. My now extensive investigation of that phenomenon, for which the term "knee-jerk" is the best designation, makes me hold the view, which I believe is also held by my former teacher, Dr. Gowers, that absence of the knee-jerk is inconsistent with perfect health of the neuro-muscular system. I make this proposition with the fullest knowledge of what has been said by other physicians.

Degrees of muscular irritability.—I think we may recognise clinically several degrees of muscular irritability. That phenomenon which goes by the name of the "idio-muscular" contraction can be got in health, but not with great facility. When the idio-muscular contraction is obtained with ease, I recognise the first degree of increased muscular irritability. The second degree of augmented excitability of muscle may be said to exist when spontaneous contractions of the whole, or nearly the whole, muscle occur—*e.g.*, subsultus tendinum. But there are other phenomena which must be classed under the head of increased muscular irritability, and of these there are also two degrees. The first degree consists in the production of fibrillary contractions by percussion of muscle, and the second is the spontaneous occurrence of fibrillary tremors. Both these degrees of muscular irritability may be witnessed in progressive muscular atrophy, lateral sclerosis, peripheral disease of nerves, and also in typhoid fever, phthisis, and other morbid processes attended with fever and wasting.

Typhoid Fever.—In all cases of marked typhoid fever the knee-jerk is exaggerated, so much so that its equivalent (contraction of quadriceps extensor) may often be produced by drawing down the patella with the forefinger, and then percussing the straining forefinger—a method that I first learnt from Dr. Gowers. Occasionally I have observed a brief but distinct clonus of the same muscle. I also find that the muscular irritability is greatly increased in typhoid fever, and this increase shows itself in several ways. When a muscle is tapped by immediate percussion with the finger or stethoscope a contraction of the whole muscle is brought about, and at the same time a series of fibrillary contractions occur in the belly of the muscle. These conditions are best observed in a voluminous muscle like the calf, but they occur in all the muscles of the limbs. Curiously enough, the facial muscles are by no means so irritable, though occasionally percussion over or about the malar process may cause a very obvious contraction of the orbicularis palpebrarum. The tongue shows fibrillary tremors rather earlier than the trunk and limb muscles. When the knee-jerks are greatly exaggerated, as they are sometimes in typhoid fever, spontaneous fibrillary contractions of the muscles occur, and spontaneous contractions of the whole, or nearly the whole, of the muscle are not unfrequently present; these are, of course, well known under the name of "subsultus tendinum." When this

marked degree of irritability exists "ankle clonus" is usually present and easily elicited.

Wasting of muscle.—Side by side with the development of this muscular irritability the muscles waste, and there is some proportion between the degree of wasting and the degree of increased irritability. But the phenomena cannot be explained simply as the result of lowered vitality due to mere emaciation, for pure wasting afebrile diseases do not so markedly increase the reflex or direct excitability of muscles, as I have determined in cancer and simple stricture of the œsophagus.

Electrical reactions.—I have made some observations on the faradic and galvanic excitability of the muscles in typhoid fever chiefly in children. I find that the faradic excitability is increased as well as the galvanic; but the faradic excitability is rapidly exhausted. There is also a qualitative change in the galvanic reactions. The contraction with negative break occurs with a much feebler current than in health, and the contraction from positive make may occur as early as the contraction with negative make. These facts show that we have not to do with the ordinary "reaction of degeneration." They remind me of some electrical reactions that Dr. Gowers showed me in a case of chronic neuritis of the musculo-spiral nerve.

Superficial or cutaneous reflexes.—In typhoid fever I have observed obvious increase in the plantar, cremasteric, epigastric, abdominal, scapular, and gluteal reflexes. To sum up, it is evident that we have to do with a general increase of muscular irritability going on side by side with muscular wasting and loss of power.

Date of onset and duration and mode of disappearance.—In typhoid fever these exaggerated actions come on usually in the course of the second week of the fever, and gradually increase till the subsidence of the fever. The phenomena continue from two to three weeks after the fever process has ended. As the muscular strength of the patients returns, and as the weight of the body increases, the various exaggerations tend to disappear. In my experience the muscular contractions cease before the knee-jerk assumes its normal degree.

Phthisis.—In cases of phthisis attended with fever the same series of phenomena may be observed. Active idio-muscular contraction and subsultus tendinum, fibrillary tremors spontaneous and elicited, increased knee-jerk, and increase of other tendon reflexes, quadriceps extensor clonus, ankle clonus, facial irritability, lingual tremor, increased superficial reflexes, muscular wasting, loss of power, and similar electrical alterations. I have also observed the same phenomena in a case of pyæmia that had lasted three weeks. In two cases of rheumatic fever that had lasted over two weeks, I noted increased knee-jerks and increased activity of the idio-

muscular contractions. Dr. Gowers has told me that a clonus has been described in rheumatic fever.

Prognosis and treatment of the neuro-muscular exaggerations.—The phenomena above referred to being regarded as expressions of a “typhoid” state of the nervous system, the indications for prognosis and treatment are the same as pertain to that state. The presence of these exaggerations is a plea for the exhibition of nervine restoratives, the best of all of which are sleep and rest, with easily digested food. Opium is the best drug, and should be employed wherever possible; it produces sleep, lessens the reflex activities, and thereby promotes the storage of nervous energy.

Remarks.—All the phenomena above mentioned may be ranged under the head of hyperkinesis. As to the precise pathogeny of these conditions, no certain statements can be made. In none of the cases that I have examined has there been anything akin to rigidity or tonic spasm. Tonic spasm never seems to be a sign of mere *exhaustion* of any part of the reflex arcs of the spinal cord. It generally occurs when disease of the pyramidal tracts exists. Most probably the energy that causes tonic spasm is derived from the motor cells of the reflex arc. And the question is, under what physiological circumstances an apparently continuous liberation of energy occurs. In many individuals unaccustomed to sharp walking a powerful tonic spasm of the muscles covering the front of the leg can be rapidly developed by hurried progression. We know that, speaking generally, the extensor muscles are inherently weaker than the flexors, and the anterior tibial muscles belong morphologically to the extensor group. Lesions of the cerebrum and pyramidal tracts are much more often followed by rigidity of muscle than any lesion situated elsewhere. It is impossible, in the present state of our knowledge, to make any definite assertions as to the physiology of rigidity, but, speaking broadly, we know that diseases limited to the reflex arcs of the spinal cord do not *per se* produce rigidity. It seems most probable that the exaggerations of muscular action in phthisis and typhoid fever should be attributed to an increased irritability, not only of the muscular tissue itself, but also of the nervous components of the reflex arcs of the spinal cord. Since ankle clonus may appear and disappear in continued fevers, it would seem certain that the foot phenomenon is not always dependent on lateral sclerosis of the spinal cord. Indeed such a proposition, though still held by some neurologists, has long ago been rejected by others. Further, sclerotic tissue in and of itself can produce no symptoms, for it is altogether outside the nervous system, and it only produces symptoms indirectly by its action on the genuine nervous protoplasm. It would be strange indeed if that condition of the neuro-muscular protoplasm on which ankle clonus depends could not be brought about by changes other than those induced by sclerosis of the pyramidal tracts. Cases of

peripheral and spinal and cerebral paralysis have been recorded as occurring during and after typhoid fever. But the changes to which I refer are to be met with in all cases of typhoid fever which have had considerable fever lasting for more than ten days. It seems to me that such deviations from the normal that I have described can only be attributed to general disturbance of the nutrition of the nervous and muscular apparatus. As has so often been pointed out by various authors since the time of Todd, "movements" are next door to paralysis. No case of hyperkinesis occurs without some weakness, and excessive action is a sign, not of strength, but of disease. "Irritable weakness" is the best name for this phenomenon, which is illustrated in delirium, chorea, and the various other forms of over-action. The excessive action of Carlyle's diction was but the *strength* of irritable weakness; and all forms of genius, however admirable, are probably nothing more than useful or profitable disease. To such strange conclusions are we led, and so are our vanities unmasked, by the frightful matter of fact of modern physiology.

Note on a contrivance for obtaining the knee-jerk more readily than by most other means.—This consists simply in "stirrumping" the foot in the left hand, and adjusting the leg at the most convenient angle of flexion at the knee. The centre of the instep should be allowed to rest comfortably on the palmar aspect of the fingers and front part of the palm.—*Lancet*, Nov. 7, 1885, p. 842.

10.—ON A TYPICAL CURE OF PERIPHERAL NEURITIS

By THOMAS BUZZARD, M.D., F.R.C.P., Physician to the National Hospital for the Paralysed and Epileptic, London.

[Dr. Buzzard opens his Harveian Lectures on "Some Forms of Paralysis Dependent upon Peripheral Neuritis," with the following narrative of a case of neuritis affecting certain branches of the brachial plexus, and occasioning local paralysis, exquisite pains, hyperalgesia, muscular atrophy, abolished or diminished electrical excitability, and trophic changes in the skin.]

A single woman, aged twenty-four, was sent to me from the country on Feb. 20th, 1883, suffering from loss of power in the right hand, with agonising pain. Her arm was in a sling, the hand covered up with cotton-wool, and she jealously watched the limb to guard it from the slightest accidental touch, so exquisite was the tenderness. The right hand and forearm had a soddened, puffy, helpless appearance, with swollen fingers and purplish discolouration of the skin in patches, which here and there looked glossy. Her immediate illness had commenced in the preceding August (six months previously) with pain and swelling in the middle finger, which gradually extended to the others, and for some

months past her hand had been quite useless. The pain was so constant and severe that she could scarcely ever get sleep at night. She looked extremely ill. It seemed that her business was to help in the household of her father. She had lost her mother from cancer of the liver. There was no rheumatism in the family, but she had been considered to be weak in the chest. A brother was supposed to be consumptive, and a sister had cough. She herself had suffered much from so-called "rheumatism" in the knee and left hand. Nothing wrong was to be found on examining her chest, and the ophthalmoscope showed no change in the fundus oculi. There was not the least reason to suspect either alcoholism or syphilis. Her temperature was 100° F. On examination, it was seen that the power of extending the wrist was moderately good, but flexion of it could not be performed. There was slight power of flexing the last joint of each finger, and an equally slight power of extending it, and this applied also to the last joint of the thumb. There appeared to be no power in the intrinsic muscles of the thumb and fingers. Examined electrically, the thenar muscles did not respond to either form of electric excitation; but the muscles of the back and front of the forearm were excitable by induced currents, though only when a considerable strength was employed. A detailed examination was not possible, owing to the exquisite sensitiveness of the limb. Warmth was felt as well by the right hand as by the left, but cold was felt best on the left (unaffected) hand. A hair drawn over the skin of the left hand was felt better than on the right. The patient was forced to keep the limb covered up, as the air would start pain, and conveyed a burning, smarting sensation. There was a more or less constant feeling of numbness in the fingers. By way of treatment, the limb was supported by a splint, ice and small flying blisters being applied; nourishing diet was ordered, and opium administered internally. The symptoms, however, continued without any material change, except that in June, after placing her arm in hot water, it became "spotted" all over, as she described it (for I did not see this), and blisters formed over her fingers. The blisters, apparently of the nature of pemphigus, discharged, and became covered with crusts, which remained when I saw her in July. I lost account of her after this, but have since learned the sequel, which is sad. She continued to suffer as described during the winter of 1883-84, and in the early spring of 1884 was attacked with acute melancholia with strong suicidal intent, and was confined for six months in an asylum. As described by the superintendent of the asylum, "her arm at the time of admission was somewhat smaller than the other, with diminished mobility and considerable pain. There was some discolouration of the skin." The arm was supported for a time, and by the end of April it appeared to have recovered its size, and she could use it a little. The pain was not constant, but warmth

caused a "burning feeling," and cold "painful rheumatic sensations." By September she could use the right hand as well as the left. Morphia was administered to her in the asylum until her melancholic symptoms were considerably improved. In October she was discharged, recovered both in her mind and also in her arm, which she used freely and without pain. The only complaint when last I heard of her was that in cold weather the arm ached.

This case was one of a rare and important character, for, without any history of violence, the symptoms bore a close resemblance to those so graphically described by Weir Mitchell as the result of gunshot injury to nerves. It was marked by paralysis, loss of or diminished electrical reaction of muscles, agonising pains of lancinating character, constant burning sensation, exquisite hyperæsthesia of the skin and probably also of the muscles, but it was not possible to separate absolutely the two conditions. Besides these symptoms, pointing to lesion of motor and sensory fibres, there were others which appeared to indicate that the vaso-motor fibres were also involved. These were the sodden, œdematous look of the limb, the patches of glossy skin, purple discolouration, and the bullous eruption which has been described as leaving adherent crusts. The case was clearly one of neuritis, the essential cause of which was, however, not evident. In process of time all the formidable symptoms subsided and the patient recovered. There must therefore have been regeneration of nerve fibres. Whilst there was paralysis of the muscles of the forearm as well as of the hand, it is to be noted that those of the latter were much more severely affected than the former. There was no power of voluntarily moving the thumb, except at its last joint, and the thenar and interosseous muscles showed no response to either form of electric excitation. The power of moving the long muscles on the back and front of the forearm was not altogether lost, and they proved to be excitable by induced currents, though of a much greater strength than is needed by healthy muscles. The effect of the lesion then became more and more severe as the periphery was approached. I would draw especial attention to this point, because, as we shall see, it plays an important part in the diagnosis of other forms of paralysis which are not so palpably dependent upon lesion of the trunks of nerves.

Dr. De Watteville has insisted strongly on the necessity of employing a galvanometer in order to check the results obtained by the application of currents, and his recommendation should certainly be followed. It is necessary to bear in mind that, although in cases of local paralysis with more or less sensory disturbances, striking alterations in the electrical excitability of nerves and muscles may be met with, these are by no means always present. Nor, as I have said, are the changes when present so constant in character that we can draw any exact inference from them in the present state of

our knowledge, except that there is probably *some* tissue change in the substance of the nerve trunk.—*Lancet*, Nov. 28, 1885, p. 983.

[See Articles 11, 12, 13, 14, 15; also ‘Alcoholic Paralysis,’ ‘Peripheral Neuritis,’ and ‘Tendon Reflexes,’ in the *Synopsis* of this volume.]

11.—ON PROGRESSIVE PERIPHERAL NEURITIS.

By THOMAS BUZZARD, M.D., F.R.C.P., London.

[The earlier part of Dr. Buzzard’s second Harveian Lecture is occupied with the consideration of the progressive and more widely distributed forms of peripheral neuritis. The cases of “rapid and almost universal paralysis,” published by the lecturer in his *Clinical Lectures on Nervous Diseases*, and in the *Transactions of the Clinical Society* (1874), are now referred to this class of cases. The case, of which the abstract given in the lecture is here reproduced, is cited by the author as one of the most typical he has seen.]

W. H.—, a working man, aged forty-four, of previous good health, was brought to me at the Hospital in January, 1873, in the following condition. He had double facial paralysis, total absence of power of voluntary contraction in the muscles of either leg, the grasp of both hands almost entirely lost, and partial paralysis of respiration and deglutition. There was incomplete paralysis of the right external rectus muscle and of the soft palate, especially on the left side. There was but little movement of the diaphragm, and the intercostal muscles were likewise acting so imperfectly that the patient could not lie down in bed. His sterno-mastoid and trapeziæ muscles acted freely. Cutaneous anæsthesia was more or less general throughout the trunk, extremities, and face—the tips of the fingers being especially numbed. The plantar reflex was absent in each foot. There was slight power of voluntarily contracting the muscles on the front of each thigh, but he was unable to contract in the least those on the front of either leg below the knee. A sense of numbness and weight was complained of in each leg, and occasionally a “throbbing ran down the left thigh and calf.” For the first two or three weeks also he had suffered from “pins and needles” in his legs. But at no time apparently had there been any actual pains in his extremities or involuntary muscular contraction. The power of the sphincter ani was normal, that of the bladder impaired to a slight extent. The muscles about the mouth showed the reaction of degeneration. In those of the arms the reaction to faradism was greatly diminished, whilst in those of the legs, below the knees, it was quite absent; in the left thigh it was greatly diminished. (The right lower extremity was lame and wasted from an old attack of infantile paralysis.) But in no part of the upper or lower extremities was there increased action to slow intermissions of the galvanic current. In the face, however,

this was marked. The facial muscles reacted to interruptions of a current from six cells (Stöhrer). His attack had commenced one month previously with numbness in the finger-ends, followed on the same day by weakness in the legs, which increased next day and was then accompanied by numbness about the calves, thighs, and buttocks. The weakness increased day by day, and a week after the beginning of his illness he had the sensation of a tight band round his abdomen. A few days later he could use neither arms nor legs. The difficulty of swallowing was not observed till a fortnight after the onset. There had been no fever. There was nothing abnormal in the mental condition, nor in the heart, lungs, and kidneys. The patient was at once admitted and placed on a water-bed. For twenty-four hours his condition was one of imminent danger from the state of respiration. As there was a syphilitic history, he was treated with iodide of potassium, and later with mercury. He soon began to improve, and in six months was able to resume his employment. A few months later I showed him at the Clinical Society entirely recovered.

In cases of acute or sub-acute multiple neuritis, it very commonly happens that the first symptom noted by the patient is a feeling of "pins and needles" or numbness in the feet, and about the same time or a little later in the finger ends. In others there is less acuteness in the attack, and prodromal pains of a "rheumatic" character have been complained of before the occurrence of numbness. Fever is not usually a marked symptom, but occasionally there is considerable elevation of temperature. It is difficult to speak very definitely on this point, because from the insidious mode of onset which often characterises even the acute cases, the patient is not usually examined with the thermometer until some days after the commencement of his illness. More often than not the patient in the early stage of the disorder tries to go about his usual avocations, but finds day by day an increasing difficulty in doing so. The numbness and deadness which had commenced in his feet and fingers gradually spread up the extremity, his legs appear to grow heavy so that he cannot move them quickly, his arms become more and more powerless, and in a few days he cannot stand or help himself in any way. The disease tends to affect both sides of the body symmetrically, though sometimes there are considerable differences in the severity of the symptoms as displayed on either side. In severe cases, we find not only the muscles of the extremities, but also those of the trunk, becoming more or less powerless; there may be facial paralysis, and some of the muscles of the eye may become involved; swallowing and respiration may also become affected; and death may occur, with signs of the vagus becoming implicated.

But it much more commonly happens that at a certain point, which differs remarkably in various cases, the climax of the attack

is reached, and then each day brings with it signs of amelioration, until in many cases absolute recovery takes place. But here, again, it is difficult to give a general sketch which shall be consistent with the many varieties which occur. The amelioration in some instances may take place with such quickness as to make it appear doubtful whether any serious organic lesion could have been present. In others, the amount of improvement which each day brings is so slight that the prognosis remains for a long time doubtful. Or there may be conditions between these two extremes. In that stage of the disease in which the patient is able to walk about, the gait is apt to be ataxic. The duration of the illness may be from a few weeks to many months, or even, if the sequelæ be reckoned, some years. During the entire illness there is in the large majority of cases great flaccidity of the paralysed muscular system. There is no doubt that this is the rule. But I have seen several exceptions. In many cases there is distinct muscular atrophy. This is especially marked in the muscles of the leg below the knee, and in those of the hand and forearm. As the patient lies in bed, even from a very early stage it is characteristic of this disease that the feet are "dropped," so to speak, the power of dorsal flexion of the foot being the first to disappear. And so also with the upper extremities. The wrists are "dropped" exactly as is seen in cases of lead palsy. The flaccidity of the muscular tissue, its tendency to atrophy, and its behaviour to electric stimuli, likewise cause a strong resemblance to this well-known form of toxic paralysis—a resemblance due to the circumstance that a similar condition of the peripheral nerves may be due to the influence of lead. When the facial muscles are paralysed, the cheeks fall in bags, the food collects in them, and there is absolute want of power of expression. The soft palate, when it is involved, hangs loose, and is unable to be lifted, so that fluids regurgitate through the nostrils, and the voice has a nasal character. In very slight cases the electrical excitability of the muscles may be unchanged; and in severe examples, if the muscles about the body be severally tested, you will find a great variety in their response. In some, faradic excitability will be slightly, in others greatly, lessened. In others, again, "reaction of degeneration" will be distinctly marked. This is especially likely to be the case as regards the intrinsic muscles of the hands, and the anterior muscles of the leg below the knee. The patellar tendon reflex is almost always lost. It is usual to find the cutaneous reflexes of the sole, abdomen, and cremaster more or less weakened, or altogether absent. As a general rule the functions of the bladder and rectum are not disordered, but in severe cases there is a loss of control over the sphincter ani, and if the patient is not quick to answer to the call of his bladder the urine runs from him. Or there may be some delay in passing urine when the desire to do so is present. On the sensory side we may expect to find pains

which are often of lightning character, coming and going in sudden darts like stabs of a knife, and recalling those which are characteristic of *tabes dorsalis*. Or they may be described as "gnawing" or "burning" or "like molten lead in the veins." They are usually more pronounced in the lower than in the upper extremities. It is very common to find that great tenderness of the muscles is complained of when these are grasped by the hand. The patient himself will sometimes describe a sensation of aching in the muscles, and very commonly indeed a feeling of "numbness," "deadness," or "pins and needles," which are referred especially to the hands and feet.

Leyden calls attention to the fact that sensations of "pins and needles" or "deadness" are apt to be produced by pressure on the nerve trunks, and remarks upon the interesting bearing of this circumstance upon the pathology of the affection. Remarkable differences may be found as regards the affection of various modes of sensibility of the skin. There may be, as we have seen, in the lower half of the forearm and hand, entire loss of sensibility to touch and pain, whilst heat and cold continue to be well recognised, or even exaggerated in intensity. Or we may find exquisite hyperæsthesia, so that not only is a touch unbearable, but even a current of air excites the greatest torture. In other cases there is only a "muffling" of common sensation, and in some no disorder of sensibility is to be noted. There is almost always a striking absence of tendency to bed-sores. The mental faculties may be expected to remain entirely free from disorder. It will happen, however, in those cases which are connected with alcoholism that intercurrent affections of the brain or its membranes may produce their peculiar effects. These complications are not unlikely, unless remembered and allowed for, to cause some obscurity in the diagnosis.

I have said that many of these cases recover perfectly. On the other hand, the process of recovery may remain permanently incomplete owing to irreparable atrophy of muscular tissue having taken place. It is in cases marked by a great amount of muscular atrophy that we are apt to meet with apparent exceptions to the rule that the paralysis is of a flaccid character. From the circumstance that all the nerve fibres supplied to a limb are not affected with equal severity, the amount of atrophy in different sets of muscles will necessarily differ. Some will lose but little tissue or none at all; others, their antagonists, may be profoundly affected. Duchenne has shown how, after the loss of a muscle, the limb, obeying the tonic power of its antagonists, whose exaggerated movement is no longer held in check, is ultimately dragged in the direction of these latter. Hence occur faulty positions and deformities. The contractures are rigid and not to be overcome by passive movement. So you will often see the foot stiffly pointed from

unopposed contracture of the sural muscles due to atrophy of those lying on the front of the leg, and analogous rigid mal-positions in the upper extremities.—*Lancet*, Dec. 12, p. 1081.

[See Articles 10, 12, 13, 14, 15; also *Synopsis*.]

12.—ON ALCOHOLIC PERIPHERAL NEURITIS—ALCOHOLIC PARALYSIS.

By THOMAS BUZZARD, M.D., F.R.C.P., London.

[The concluding portion of Dr. Buzzard's second Harveian lecture is devoted to the consideration of neuritis as one of the effects of chronic alcoholism.]

Since Magnus Hüss, of Stockholm, drew attention in 1852 to a form of paralysis occurring in alcoholic subjects, important contributions to our knowledge of the subject have been made by Lancereaux and Leudet in France, and by Reginald Thompson, Handfield Jones, and Wilks in England. But little has appeared on the subject in England since Dr. Wilks' communication to the *Lancet* in 1872, except a paper at the Royal Medical and Chirurgical Society by Dr. Broadbent in the course of last year, and more recently valuable contributions from Dr. Dreschfeld and Dr. Hadden. My personal observation of the disease dates from a case which I attended in 1870 in consultation. The patient was a lady who had for years been addicted to great alcoholic excesses, consuming large quantities of brandy. When called to her, she was in bed suffering from considerable loss of power in the upper and lower extremities. The hands were dropped at the wrists, and she could not extend them. The feet, too, were likewise in a dropped condition, and there was no power of dorsal flexion. There was much mental disturbance, and such loss of memory that the patient could give no intelligible account of the duration of her illness. She could move her arms and raise the knees, though with difficulty. The functions of the bladder and rectum were not interfered with. Her naked feet projected from the foot of the bed-clothes, and she would not allow anything to be laid upon them, so exquisite was the tenderness of the skin. Her constant complaint was of the agonising pains in the legs, "as though the veins were filled with molten lead," and she appealed piteously to those around her for relief from this suffering. She was placed in charge of two nurses, who gave her no more than the very small amount of stimulant which was allowed, and under careful feeding and treatment her pains got rapidly less. There was much muscular atrophy of the hands and forearms and the anterior tibial muscles, with complete "reaction of degeneration." Her hands assumed the typical form of the "*main en griffe*" of Duchenne. In the course of a little more than a year she had recovered so far as to

be able to go about by herself, and the movements of the hands also were practically restored. The first use which she made of her liberty was to visit a succession of taverns, and inaugurate a debauch, which terminated her existence in the course of a week or two.

This case made a great impression upon me, for it was at that time a novel experience. Since then I have seen many examples of varying gravity. One very important feature of this subject is, that we may see a remarkable difference of severity in these cases, so that it is difficult at first sight to understand that they can possibly be examples of one and the same disorder. Dr. Broadbent, in his recent paper, brought forward several examples of a form of alcoholic spinal paralysis characterised essentially by insidious onset, progressive weakness, especially of the extensors on the fore-arms, giving rise to double wrist-drop, inability to stand, loss of knee-jerk, and retention of plantar reflex. The sensation was described as unimpaired, except that in every case there was tenderness on firm pressure, and in one lancinating pains. There was œdema of the lower extremities. The symptoms gradually grew more intense, and death took place by asphyxia in consequence of paralysis of the diaphragm and intercostal muscles. In the case in which a necropsy took place no change could be detected in the spinal cord, the only organ which was allowed to be examined. I think the inference to be drawn from the clinical characters of these cases, and the negative results of examination of the cord, is that they were examples of multiple neuritis.

Dr. Wilks, Dr. Barlow, and myself, who took part in the discussion on Dr. Broadbent's paper, spoke of recovery as very common. I remarked, too, that in more than one case that I had seen there was a history of a previous attack, from which under abstinence the patient had recovered, only to become again affected as the old habit was resumed. In an interesting work, "*Etude sur les Paralysies Alcooliques*," recently published in France by Dr. Oettinger, the author speaks of the prognosis as "most grave," and does not conceal his surprise at the recorded experience of some English physicians who speak of patients recovering after abstinence from alcohol, to relapse when they again returned to it. This difference of experience would imply that a number of cases pass unrecognised, being referred to some other cause than alcohol; and this it seems to me, may be quite as true probably in reference to the very severe as well as to the slight examples. An observer, whose experience of the disease had been derived from a certain number of fatal cases, might easily overlook the true origin of comparatively slight examples which came before him. On the other hand, one who had got to associate alcoholic paralysis with cases which uniformly recovered might not unnaturally sometimes fail to

ascribe a rapidly fatal case of paralysis to its real source. The art with which a secret drinker, especially if a female, will conceal her vice, is well known. Where there is an absolute concealment of all traces of alcohol and a dexterous suggestion on the part of the patient of other possible causes of the illness, it is not surprising that the medical attendant is sometimes deceived. This must evidently be especially liable to occur in hospital practice on account of the difficulty of obtaining accurate information as regards the habits of the patient. There is now enough of evidence from histological examination to show that in alcoholic paralysis of the kind which I have described, the essential lesion consists in parenchymatous neuritis of the peripheral nerves. It is evident that, as a result of chronic alcoholism, more or less extensive lesions may be expected to be found in various parts of the body, especially in the liver and intra-cranial membranes. But there can be little doubt that the degenerative changes in the peripheral nerves are the immediate cause of the paralytic symptoms. In these cases, as has been shown by Lancereaux and others, the spinal cord and the roots of the spinal nerves are found normal. It is in the periphery of the nerve fibres that the changes are discovered. They are cases, indeed, which come into the category of multiple neuritis.

I have already sketched the symptoms and course of multiple neuritis. These need not, therefore, be recapitulated, but it may be useful to refer to some of the clinical features of the alcoholic form of the disease as I have observed it. In the nature of things, the patients usually exhibit more or less intellectual disturbance. The memory is especially weakened; there is a tendency to incoherent talk; and it may be found on inquiry that the patient suffers from nervous symptoms suggestive of incipient delirium tremens. I have found that pains and hyperalgesia have been, as a rule, extraordinarily pronounced. So, also, the degree of muscular atrophy seems to me to be frequently greater in this than in other forms of multiple neuritis. It is remarkable to see the extent to which, in many cases, the muscles of the legs and forearms are wasted. The muscular tissue seems to have almost entirely disappeared. This is especially to be seen in the extensor group, so that the feet, as the patient lies, drop helplessly forward. As has been already pointed out when dealing generally with the symptoms of multiple neuritis, the varying degree of muscular atrophy in a limb may easily give rise to contracture of rigid character. You may thus at one stage of the disease find a patient lying in bed with powerless, wasted, and flaccid limbs—the feet and hands, as mentioned, helplessly dropped; and in another stage find the same patient with the tendo-Achillis rigid, the foot unable to be brought into dorsal flexion by strong passive movements, the hamstring muscles contracted, whilst the hands perhaps show the claw-like character described by Duchenne.

Pains and extreme sensitiveness to touch are, as I have said, of extremely frequent occurrence in alcoholic paralysis. It is interesting to note that when recovery takes place, and a second attack occurs later on, the symptoms in this respect may vary in the same individual. A lady, given to great alcoholic excess, lost power in her legs, the feet being "dropped," and reaction to induced currents absent in the anterior tibial muscles. She complained of dull aching pains. Two years previously she had recovered from an attack of paralysis of similar kind, except that on that occasion the pains had been of excruciating character.

The pains and inordinate sensibility of the skin may, I believe, be altogether absent in alcoholic paralysis, as happens likewise in some cases of multiple neuritis of non-alcoholic origin.

The absence of knee phenomenon is so common in these cases that we may almost confidently expect to find this symptom. It will now and then happen, however, that we may find the knee-reflex not only present, but somewhat exaggerated. I do not see how to explain this as a result of neuritis, and as I believe it is only in alcoholic examples that the anomaly is observed, it may be due to interference with the inhibitory influence of the cortex cerebri caused by the action of alcohol.

Considering that the toxic influence of alcohol must be brought about through the medium of the circulation, it is not surprising that the upper as well as the lower extremities should be affected in cases of alcoholic paralysis. Indeed, it might be anticipated that the effects would display themselves equally upon all the voluntary muscles of the body. But this is not the case. It is upon the lower extremities that the brunt of the mischief falls. They usually suffer the most, and may possibly, perhaps, be occasionally alone affected. But I am disposed to think that their immunity is not nearly so great as has been supposed, and that careful observation would show that in cases where the patient only complains of loss of power in his legs, the arms are also, though to a less extent, likewise affected. The patient's attention is apt to be so engrossed by the preponderating disorder in his lower extremities that he takes little or no notice of the weakness in his hands. An observation which I made many years ago in a case of lead-poisoning very much struck me. Although the patient only complained of one arm and one leg (which were manifestly paralysed), and asserted that there was nothing wrong with the other extremities, I found in the muscles of the latter a very well-marked decrease of faradaic excitability. I have also many times noticed a similar condition in cases of infantile paralysis.

In general terms, it may be said that, just as in a case of lead paralysis we expect to find dropped wrists, so in a case of alcoholic paralysis we look for dropped feet. I would go further, even, and

say that if we meet with a case of dropped feet—a paraplegic condition affecting with marked preponderance the anterior tibial group of muscle—we should be on the alert to inquire respecting the possibility of alcohol being a cause. Let me not be misunderstood. The existence of this condition is not alone a proof of habits of excess, but it is so extremely constant in cases of alcoholic paralysis that we should be wanting in our duty if we failed to bear this in mind, and direct investigation accordingly. This is, of course, a delicate matter, and on more than one occasion I have observed a look of somewhat indignant surprise on the face of the medical attendant of whom the inquiry has been made. But we have no more right to omit the inquiry than we should have to avoid examining into the possibility of lead-poisoning when a case of dropped wrist comes under our observation. It is especially when we find not only the extensors of the feet but those of the hands paralysed, and also when there are some sensory disturbances as well as motor, that we shall do well to bear in mind the possibility of alcohol being at least a factor. Where careful observation shows that the lower extremities are alone involved, the upper extremities being quite normal as regards strength, sensibility, and electrical reaction, it will usually, I think, be found that the influence of alcohol may be put out of the question. It is evident that there is but little likelihood of the effects of alcohol being limited to certain extremities; but, as I have said, it is very common for the legs to show the disorder before the arms—and supposing that abstinence takes place at this point, it is perhaps conceivable that the latter might escape. This, I should think, must be extremely uncommon.

I am not able to explain the greater tendency of the lower extremities to suffer in this affection. It is an interesting circumstance that a similar proclivity for the lower extremities to be most affected (sometimes, indeed, exclusively so) is shown in the case of the endemic disorder, *béribéri*. But it is not only in connection with alcohol and *béribéri* that this preponderance is observed. Several cases have fallen under my observation marked by characteristic symptoms of peripheral neuritis which have been entirely confined to the lower extremities. In some of them I have not been able to satisfy myself as to the probable originating cause of the affection of peripheral nerves; syphilis, alcohol, lead, and diphtheria being out of the question. They have been characterised by loss of power in the anterior tibial muscles, so that one or both feet are “dropped,” with cutaneous hyperæsthesia or anæsthesia, limited usually to more or less of the leg below the knee, and sometimes by œdema. Such cases constitute a peculiar form of paraplegia, which needs extended investigation.—*Lancet*, Dec. 12, 1885, p. 1084.

[See Articles 10, 11, 13, 14, 15; also *Synopsis*.]

13.—ON PERIPHERAL NEURITIS; THE CAUSE OF DIPHTHERITIC PARALYSIS.

By THOMAS BUZZARD, M.D., F.R.C.P., London.

It is necessary to bear in mind that peripheral neuritis occasionally occurs in the sequel of some febrile affections. Besides diphtheria, of which I shall have to say more presently, other specific febrile disorders are apt to be followed by paralysis, which is sometimes more or less general and at other times strictly localised.

The symptoms of diphtheritic paralysis are so well known that I need not trouble you with any systematic account of them. My intention is to refer chiefly to those clinical features which show that the disease ought probably to find a place alongside of the other forms of paralysis essentially dependent upon peripheral neuritis.

The ataxy of gait which is so frequently seen in the sequel of diphtheria is precisely of the kind which occurs in multiple neuritis arising from other influences, such as alcoholic, syphilitic, and also in certain unclassified forms. It never, so far as I have seen, acquires the pronounced character of the ataxy which is so often associated with sclerosis of the posterior columns of the cord. We do not see in these cases the wild flourishing about of the legs, with stamping action, so characteristic of the latter disease. The ataxy in multiple neuritis is probably due, I think, not to any affection of the posterior columns of the cord, but to the want of harmony in the strength of various muscular contractions owing to the varying amount of the lesion of peripheral nerves.

I long ago drew attention to the chance of diphtheritic paralysis being mistaken for tabes dorsalis, of which several instances have come before me. When the electrical reaction of the muscles is unimpaired this is peculiarly liable to occur. The condition of the pupils should be a help towards differentiation. In tabes, as was first pointed out by Argyll Robertson, the pupils are very apt to lose their capacity for contracting to light whilst retaining the power of contraction during an effort at accommodation. In diphtheritic paralysis, so far as I have seen, the pupils retain the power of contracting to light. How they behave in an effort at accommodation I cannot say, and several ophthalmological friends to whom I have applied have not been able to tell me, but have kindly promised to observe the point. In view of the peculiar affection of accommodation in this disease, it would be interesting to know whether there is normal contraction of the pupil during convergence for accommodation. The tenderness of the trunks of nerves which was here conspicuous was long ago observed by Dr. Greenhow. In a paper read before the Clinical Society of London upon "Diphtheritic Paralysis," in 1871, he suggested the existence

of neuritis, having been struck by the tenderness of the sciatic nerve in a case of this kind. He referred to the fact that Mr. Hulke in one example had discovered optic neuritis. In the cases of multiple neuritis which I have seen, including those of the alcoholic form, the optic nerve has been unaffected; but in one patient who, I believe, suffered from the non-alcoholic form of the disease (though the diagnosis is not absolutely sure) there was optic neuritis. It occurred also in a case related by Strümpell.

Opportunities of examination after death in cases of diphtheritic paralysis are comparatively rare. The results in such cases as have been recorded are at first sight conflicting. Changes of an atrophic character in the ganglion cells of the anterior horns of the spinal cord have been described by Vulpian, Déjerine, Abercrombie, Kidd, and others. On the other hand, many investigations support the opinion that the cause of diphtheritic paralysis lies in a lesion of the peripheral nerves. Charcot, Vulpian, Lorain, Lépine, Lionville, Leyden, and Meier have contributed testimony in this direction. Changes also in the vascular system and its contents have been noted by Buhl, Oertel, Mendel, and others, in the form of hyperæmia, capillary hemorrhage, and thrombosis.

It must be remembered that the cases in which disease of the spinal cord has been discovered have been of necessity fatal cases; and the question is, What is the pathology of the infinitely more numerous cases which not only recover, but recover without leaving a trace of any permanent change? I do not think that, with the clinical evidence before us, we are justified in saying that diphtheritic paralysis in its ordinary form, passing to complete recovery, is dependent upon an affection of the spinal cord. It is, in my opinion, more reasonable to conclude that in this disease we have usually to do with peripheral neuritis of very varying severity, which in the mildest cases is probably represented by a mere transitory hyperæmia with effusion in the interstitial element.

Were such changes in the spinal cord as I have referred to ordinarily present, the complete recovery which is well known to be the rule would be impossible. The alterations in the number and structure of the ganglion cells would certainly be attended, as they are in cases of infantile paralysis, by more or less permanent paralysis and atrophy in corresponding nerve districts. Nor should we find, as we do in many instances, the electrical reaction of the muscles remaining normal. Moreover, the sensory disturbance which is so often present in diphtheritic paralysis, cutaneous anæsthesia, tenderness of muscle and nerve trunks, and darting pains, cannot possibly depend upon lesion of the ganglion cells of the anterior horns of the cord, whilst they point as strongly as possible to affection of nerve fibres.

Practically one very seldom indeed meets with examples of

diphtheritic paralysis exhibiting such a near approach to the symptoms of typical interstitial neuritis as is so frequently seen in alcoholic paralysis. No doubt now and then a case is seen in which severe shooting pains are very prominent, another in which there is extreme and widespread loss of muscular power, or it may be that loss of cutaneous sensibility is strongly marked. So also here and there we may find one in which there remains a narrowly localised and permanent muscular atrophy. I lately saw with Dr. Playfair and Dr. Semon a case in which, a year after the onset of diphtheritic paralysis, there was unilateral atrophy of the tongue and partial paralysis of the lips. But if we take a very common type of alcoholic paralysis and the most frequent form of diphtheritic paralysis, the contrast appears to be strongly marked. In the former we have notable paralysis of the extensor muscles of the extremities, with cutaneous tenderness or anæsthesia, pains of an agonising description, rapid muscular atrophy, and complete loss of faradaic excitability. In the most common examples of diphtheritic paralysis there is weakness and ataxy rather than marked paralysis, a varying amount of cutaneous anæsthesia, pains either absent or of trifling character, no muscular atrophy, and electric reaction to induced currents either normal or but slightly reduced.

But alongside of these strikingly contrasted symptoms there are others which point more or less strongly to a kindred origin. In each case, for example, loss of patellar tendon-reflex is a very constant symptom, and tenderness of the muscles to palpation is likewise very generally marked in both. If, again, we pass from the strikingly contrasted forms to which I have just referred, we shall find cases more and more approaching a common character—cases of alcoholic paralysis with ataxic symptoms predominant, with pains but slightly marked or absent, and only a moderate amount of anæsthesia; or, it may be, cases of diphtheritic paralysis without affection of accommodation or of the palate, and with ataxy rather than paralysis. Moreover, in some rare cases of diphtheritic paralysis there may be exceedingly severe lancinating pains, great tenderness of the muscular masses, “dropped” hands and feet, followed by more or less general powerlessness of the upper and lower extremities, absent tendon-reflex, without affection of accommodation or of the velum palati—a train of symptoms, indeed, which is literally only distinguishable from those of alcoholic paralysis by the absence of any mental disorder. It is indeed hardly possible to doubt, from the mode in which the clinical characters of the two conditions thus approach each other and sometimes meet, that they depend essentially upon similar lesions varying in severity in different instances.—*Lancet*, Dec. 19, 1885, p. 1127.

[See Articles 10, 11, 12, 14, 15; also *Synopsis*.]

14.—ON THE DIFFERENTIAL DIAGNOSIS OF PROGRESSIVE PERIPHERAL NEURITIS.

By THOMAS BUZZARD, M.D., F.R.C.P., London.

[Dr. Buzzard, after pointing out that peripheral neuritis may present itself in one of three methods of distribution, viz., (*a*) as affecting a single nerve ; (*b*) as affecting a plexus of mixed nerves ; (*c*) as progressive and becoming more or less universal, goes on to speak of the differential diagnosis of the last form as follows.]

The diagnosis of multiple neuritis is of great importance, and may present no small difficulty. It is evident that there are certain points in the symptomatology of this disease which enable us to narrow the question of diagnosis, so far at least as strongly-marked cases are concerned. The alteration in the electrical reactions of the muscles alone permits us to say at once that the disease is not dependent upon an intra-cranial lesion. We know that we have to do with paralysis of either spinal or peripheral origin. In its mode of onset and progressive character there is a strong *primâ facie* resemblance between multiple neuritis and the acute ascending paralysis of Landry. This disease (of which I know but little, save what I have read), beginning usually like multiple neuritis with numbness in the finger-ends and feet, is characterised by motor paralysis, which commonly first affects the lower extremities, and spreads upwards over the trunk and upper extremities. The circumstance that the distal portions of the extremities are first involved gives rise to a great resemblance to the aspect of multiple neuritis. But in acute ascending paralysis the general sensibility is said to be scarcely, if at all, affected; there is no notable atrophy of the muscles, and no change in their electrical reaction.

Weakness of the arms, with pain in one or other of them, accompanied by loss of power in the lower extremities, and anæsthesia extending to the upper ribs, may be caused by a tumour pressing upon the cord in the lower cervical region of the spinal cord. But in such a case we should expect to find more or less paralysis of the bladder, with a strong tendency to the occurrence of bed-sores. The reflexes, deep and superficial, would be increased below the waist—the electrical excitability of the muscles of the lower extremities would be unchanged. There would be notable tendency to spasmodic contractions of the lower limbs.

The symptoms arising from Pott's disease of the spinal column when the affected vertebræ are in the cervical region are of course very comparable with those resulting from tumour in the same region. The symptoms of compression-lesion just enumerated will be found, and will alone suffice to distinguish from multiple neuritis, even without the evidence afforded by the spinal deformity.

Where there is paraplegia from acute softening of the cord, the symptoms are far more rapid than is the case in multiple neuritis. The bladder is apt to be paralysed quite early in the case—sometimes, indeed, a failure to pass urine is the first symptom. Disorder of the bladder and rectum are, indeed, ordinarily as conspicuous in this disease as they are altogether absent or trifling in multiple neuritis. There is also constant tendency to destructive bed-sores in the sacral region and other parts, in striking contrast with the immunity which almost always obtains in multiple neuritis.

The differential diagnosis between multiple neuritis and acute anterior poliomyelitis may be very easy indeed, or so difficult as to give rise to considerable doubt. It appears to me that there are three principal points to be borne in mind: (1) In acute anterior poliomyelitis, what may be called the first stage—the stage of increasing intensity of symptoms—is usually much shorter than in progressive multiple neuritis, the paralytic symptoms far more complete, and the motor disturbance much more marked than the sensory symptoms, where these chance to be present. In multiple neuritis, on the contrary, such forms of the latter as “numbness,” “deadness,” and “pins and needles” are usually more prominent at first than the loss of power. (2) In acute anterior poliomyelitis groups of muscles functionally related are apt to be struck simultaneously with complete loss of power, whilst in progressive multiple neuritis the groups of muscles invaded by the disease are apt to be those in the district of distribution of various nerve trunks rather than of plexuses. (3) In progressive multiple neuritis, severe enough to cause marked paralysis, you may expect to find distinct tenderness if you press upon the trunks of nerves where these are superficial. Sharp shooting pains in the course of peripheral nerves lasting several days probably furnish in an otherwise doubtful case conclusive evidence in favour of progressive multiple neuritis. This is the best diagnostic scheme which I can suggest, but I acknowledge that in certain cases it will not be sufficient for the required distinction. For it may chance, in a case of multiple neuritis, that the motor disturbance is exceptionally rapid, severe, and unaccompanied by sensory disturbance. It may be so extensive as to merge in one common powerlessness all the muscles of a limb, whether functionally or anatomically related. As regards the tenderness on pressing the nerve trunks, I am not able to say whether this is constant in cases marked by motor symptoms chiefly or entirely, as well as in those characterised by striking pain and hyperalgesia. It is in the latter only that I have noted the symptom.

No doubt, if we take the example of a purely motor nerve—the portio dura,—in cases of neuritis of its trunk causing facial palsy, there is not any tenderness on pressure. But in a spinal mixed

nerve, a nerve containing sensory as well as motor fibres, even when the symptoms point only to lesion of the motor nerve fibres, it may well happen that there is over-excitability of the sensory fibres. But, as I have said, whether this is the case or not I do not know.

It may be asked whether, considering that in each case the lesion of the peripheral nerves is immediately the cause of the paralytic symptoms, it is not over-refining to try to determine to which category a particular example belongs. The importance lies in the fact that the prognosis is, on the whole, far more favourable in a case of multiple neuritis than in one of anterior poliomyelitis. The explanation of this cannot be better put than it has been done by Dr. Poore, who, in his selection from the works of Duchenne, reminds us of the "probability that the repair of motor cells once lost is impossible, whilst the repair of conducting fibres emanating from healthy motor cells need never be despaired of."

It is highly probable that a certain number of cases of so-called "infantile paralysis" are examples of multiple neuritis. I am much disposed to think that in the cases of "infantile paralysis" which make unexpectedly good recoveries after very long delay, the lesion may have been in the nerve trunks, and not in the anterior ganglia of the cord.—*Lancet*, Dec. 19, 1885, p. 1129.

[See Articles 10, 11, 12, 13, 15; also *Synopsis*.]

[NOTE.—Dr. Buzzard's remarks on the differential diagnosis between peripheral neuritis and spinal lepto-meningitis and some other of the rarer nerve lesions are omitted for want of space.]

15.—ON THE TREATMENT OF PERIPHERAL NEURITIS.

By THOMAS BUZZARD, M.D., F.R.C.P., London.

The treatment of localised neuritis occurring in a person of gouty habit, and presumably dependent upon that exciting cause, should be in accordance with the customary methods adopted for acute gout. After the acute symptoms have subsided, good is sometimes experienced from the application of small flying blisters in the neighbourhood of the affected nerves, and comfort may be derived from the employment of the constant current.

In severe cases of a progressive multiple neuritis it is advisable to place the patient at once upon a water-bed, although it will have been noted that in this disease there is not seen the same tendency to dangerous bed-sores which is observed in certain lesions of the spinal cord. But I think that the water-bed supports the weak patient better than an ordinary couch; and this becomes of importance when, as sometimes happens, life is carried on with difficulty, owing to the nerves presiding over respiration, deglutition, and the heart's action becoming involved in the progress of the disease. In such cases as these the administration of food in

easily assimilable form and quantity, and at very short intervals, is urgently required, and stimulants are often needed. During the first stage of the disease it will be advisable to administer iodide of sodium in all cases except examples of diphtheritic paralysis and those in which a syphilitic taint can be safely put aside. In the progress of the disease it may be found necessary to give the salt in increasing doses. In one of my cases the dose of iodide of potassium was increased from ten to sixty grains three times a day with evident advantage, and to this mercurial treatment was added. In a case of multiple neuritis with a distinct syphilitic history, I should now begin with mercurial inunctions, and also employ iodide of sodium at the same time. In cases of non-specific character, and especially where there is reason to think that exposure to cold and other causes of rheumatism have been present, it will be well to employ the salicylate of sodium, which in the hands of Leyden has apparently yielded favourable results. The dose and mode of use is like that for acute rheumatism. For the relief of pain a combination of morphia with Indian hemp and belladonna may be employed internally with advantage, and lint steeped in chloroform may be pressed for a minute or two on the seats of greatest suffering if the state of the skin admits of this. But very often, and especially in alcoholic cases, there is an amount of exquisite hyperæsthesia which renders it difficult to apply any local remedy. In such instances the best thing is to envelop the tender limb in cotton-wool and cover this lightly with oil-silk. When multiple neuritis has arisen in connection with the abuse of spirits, I am accustomed, as a general rule, to withhold alcohol in any form, and to depend entirely upon frequent administration of food for the support of the patient. Nutrient enemata will sometimes be required. In such cases as these it is remarkable how rapidly the pains and hyperæsthesia which have been the cause of intense suffering to the patient cease. It is very difficult to say how long a patient suffering from multiple neuritis should be kept strictly and absolutely at rest. This should certainly be done during the continuance of pain or hyperæsthesia, and in case there is any important elevation of temperature. But when it is evident that the process of regression or repair has taken place to a considerable extent, the patient should be allowed to get up and cautiously try to move the muscles of the affected limbs. By slow and careful steps the effort at voluntary movement may be increased. At the same time the galvanic current slowly interrupted should be applied to the muscles. The motive for this application may be thus explained. When you apply the two rheophores of an induced current machine to the skin covering a healthy muscle, and thereby obtain a contraction of muscular structure, that contraction is probably brought about by the momentary currents stimulating the intra-muscular nerve, and not by the action of the currents directly on the muscular fibre; so that

when the conductivity of the nerve fibres is lost by disease one result is that you fail to produce contraction of the muscle by applying the induced current to it. The essential element of the nerve fibre has degenerated, but the muscular fibre has not (at least this obtains for a long time) suffered any important change. It is still, therefore, capable of being thrown into contraction by the making and breaking of a galvanic current which acts directly upon muscular tissue itself—not indirectly, like the induced current, through the medium of a nerve twig. Now it is probable that muscular structure may retain its power of contraction to this direct electrical stimulus for a very long time after it has lost its physiological connection with the anterior grey matter of the spinal cord. I have seen the property retained in these circumstances for several years—in one case thirteen years—but I have also seen it lost altogether within a year. As the process of regeneration of nerve fibre may require in severe cases a very long time for its completion, it is evidently important that the muscular structure should not by the time the nerve has recovered have itself undergone a degeneration from which there would be no return, and which would render it unable to respond by contraction to impulses arriving through the regenerated nerve. Physiologists have found that if muscle which has lost its nervous elements be artificially stimulated now and then to contraction, its irritability will continue. When left to itself, however, the irritability is apt to disappear and the muscular substance to undergo degeneration. There is therefore a good reason for the use of slow interruptions of the constant current in these cases.

There are some grounds for believing also that faradisation with the wire-brush upon the dry skin may be employed with advantage. As you are aware, this means was introduced by Duchenne for the treatment of anæsthesia. There can be no doubt of its service in anæsthesia, and by inference we may perhaps reasonably conclude that it may help by its action on the sensory fibres of the nerve towards the restoration of function in the lesion of nerves under consideration. Massage is also useful in this stage, and in this I would include passive movements by the operator, as well as active movements against resistance on the part of the patient. In the contracted state of limbs which occasionally results, the contracture being due to unbalanced muscular antagonism, division of a tendon may sometimes be adopted with advantage. Considerable patience should be employed before proceeding to this measure, as I have known contractures, which were to all appearance hopelessly permanent, yield without operation to assiduous massage combined with active and passive movements. Along with the contracture of the muscles, it will sometimes be found that adhesions have taken place in some of the joints owing to disuse. These should be forcibly broken down. The aim generally should be to

disengage muscles from obstructions to their movement, and to encourage their growth and functional activity by various kinds of physiological stimuli.—*Harveian Lectures, Lancet, Dec. 19, 1885, p. 1130.*

[See Articles 10, 11, 12, 13, 14 ; also *Synopsis.*]

16.—ON LEAD-POISONING.

By THOMAS OLIVER, M.D., M.R.C.P., Physician to the Infirmary, Newcastle-upon-Tyne.

Amongst the earliest symptoms of plumbism which attract our attention, I should feel inclined to place cachexia. Previously to this, there has been experienced by the patient a general feeling of ill-health, and nutrition has not been maintained. An anæmic condition is soon developed, in which the skin acquires a dull earthy hue. To the dull, anæmic, and somewhat listless look, there is frequently added a peculiar fulness of the cheeks, that we are often able, especially in the case of women, to diagnose lead-poisoning when we see the patients in the streets. Many of them are young women. They have the anæmic look of patients who have lost largely of blood, without presenting anything like an uterine facies. On the other hand, the appearance is different from the greenish pale hue of chlorosis. Associated with, or closely consequent upon, this saturnine cachexia, there is generally digestive derangement; constipation, with colic; the breath is foetid; the tongue foul; the teeth discoloured; the gums retracted, showing an unusual length of teeth, and exhibiting a blue line at the junction of teeth and gum. I have not noticed vomiting as a frequent symptom in lead-poisoning, unless the kidneys have been affected or head-symptoms predominant; nor can I say that I have found the pulse slower than in health, as some assert. It is rather the reverse of this; for, in most of my cases, the pulse has been higher than normal, even when the kidneys have been affected, strange to say. Sooner or later, there is developed paresis of the extensors of the forearm, which gradually deepens into a true paralysis. Many of these muscles undergo atrophy. This condition is due partly to disuse; but, as the atrophy extends to other muscles which are not paralysed, and is of itself at times a symptom of lead-poisoning—its seat being frequently the muscles between the thumb and forefinger—the cause of the atrophy must be something other than want of use of muscle. The extensors of the forearm are the muscles generally and most deeply paralysed, but the loss of power is by no means confined to them. Frequently they are spared, and the muscles of the leg affected, as in one case I have seen, where the peronei are involved. In those cases where “dropped wrist” occurs, the symptoms of lead-poisoning have been as a rule slowly developed. You have this taking place without

any marked disturbance of the central nervous system, and with or without the presence of albumen in the urine. Many of these patients have been employed in the lead-factory for years, and only by degrees have they felt their health give way. It is otherwise, however, with some; in not a few—and I refer particularly to young females—symptoms of lead-poisoning are often suddenly developed, a few months of work in a factory being sufficient to call forth the most alarming symptoms—extreme headache, dimness of vision, and fits of an epileptiform character. In these, the urine may or may not be albuminous. Frequently, the optic disc is seen to be the seat of very marked changes. What is of interest in these cases—the most dangerous because they are the most acute—is that the symptoms often come on suddenly, are frequently the first warning that the patient has of being poisoned. Once having suffered in this manner, the patient is thereafter completely disqualified for undertaking further duties in the factory. No medical inspector would allow, if he knew, such a woman to begin work again amongst lead; experience having shown that a renewed brief exposure to the poison is sufficient to bring back the symptoms with tenfold vigour.

Of the eighteen cases of lead-poisoning which have been under my care during the last six years, eight exhibited “dropped wrist;” one suffered from right hemiplegia, with aphasia; one from a peculiar tremor of the arm and leg. Dropped wrist was double in seven of the eight cases, and one had ataxia of the arms. Of the remainder, five exhibited cerebral symptoms; one had marked general muscular atrophy; one is suffering from cirrhosis of the liver. In most of the cases, we find that the patient, after having suffered from colic, becomes aware of a gradual loss of power in the muscles of the forearm. This paresis passes into a true paralysis, which shows itself, generally, at first in the *extensor communis digitorum*, and extends to the other muscles supplied by the musculospiral nerve, with the exception of the *supinator longus*. With this loss of voluntary control, the muscles also lose their faradic contractility; and, according to Duchenne, “the *extensor communis digitorum*, *extensor indicis*, *extensor minimi digiti*, and the *extensor secundi internodii*, are the first to suffer in their electro-contractility.” It is only, however, when the *extensores carpi radiales longiores et breviores*, and the *extensores carpi ulnares*, are paralysed together, that the wrist drops, and the patient is unable to extend them. Pronation and supination are not, as a rule, interfered with. The loss of voluntary power and electro-contractility is frequently followed by atrophy; and here I would again remind you that these changes may proceed to muscles beyond the forearm. In one of my cases, there was pretty general muscular atrophy. At times, the muscles of the ball of the thumb become affected, and when this is the case, the appearance is not

unlike that seen in progressive muscular atrophy. The slow development of progressive muscular atrophy, and the fact that the wasting precedes the loss of the electrical contractility, would help you to distinguish between the two diseases, bearing in mind, however, that a progressive muscular atrophy may be the result of lead-poisoning. As a rule, paralysis from lead-poisoning is double and symmetrical. In only one of my cases was it confined to the muscles of one forearm. Loss of sensation is less commonly met with. I have not seen any mention of tremor as a symptom of lead-poisoning. In one of my cases—a male, kindly sent to me by Dr. Beatley—there is a peculiar shaking of the left arm and leg. The man has worked for twenty-eight years in a pottery, his duty being to dip the jars into a solution of lead, and place them in the oven. He admits having drunk beer pretty freely, but states that he always enjoyed good health until two years ago. The tremor is very noticeable; beginning in the left thumb, the shaking extends up the arm, throwing the limb into a state of violent tremor, over which he has no control. It is not a painful shaking, nor does it altogether prevent him following his occupation, though he says it is very detrimental to him. It is only within the last six months that the shaking has extended to the left leg, but here it is not so bad as in the arm. Strange, too, the shaking never begins in the two limbs together at the same time, and never in the leg first. It is always conveyed from the arm to the leg; the leg may be in a state of complete rest, while the arm is violently agitated. In his case, there is no marked paralysis; the grasp of the left hand is feebler than that of the right. The shaking of the arm can be stopped by forcibly extending the thumb. In the left leg, though there is neither knee-jerk nor ankle-clonus, foot-trepidation can be easily induced by causing the patient to bear his weight upon the toes. His gums show a well marked blue line; his urine is not albuminous.

The presence of a blue line on the gums I regard as a very important sign of lead-poisoning, but only when accompanied by other symptoms. In thirteen of the eighteen cases, it was present; of the remainder, some had had a blue line a few years ago, and had lost it. I make it a rule to examine the gums in cases of suspected lead-poisoning; and, in its absence, would attach very great importance to the character of a paralysis, or muscular atrophy if present, and to the facial appearance—pale and rounded. Buzzard (*Diseases of the Nervous System*) has, in the absence of blue line, detected lead-poisoning by the seat of the paralysis, and the diminution of the excitability of muscles to faradism. Knowing that the presence of a blue line on the gums is quite consistent with good health—that it may disappear, and return after the use of potassium iodide—and that it is seldom, if ever, met with in people who scrupulously use the tooth-brush, you see why we

attach little importance to this sign alone. If present, however, it is a valuable aid to a diagnosis. It is due to the formation of sulphide of lead—caused as Mr. Tomes has shown, by the decomposition of food left about the margins of the teeth and their interstices; the sulphuretted hydrogen thus liberated acts upon the lead which is in the tissues, and causes its deposition. I regard this as the origin of the sulphur rather than the sulpho-cyanic acid of the saliva. Hilton Fagge showed that the discoloration of the gums is not uniform, but is distributed in loops corresponding to the vascular papillæ of the mucous membrane, that the pigment consists of granules, some of which are deposited inside, others outside, the small blood-vessels. The lead, to be acted upon by the sulphuretted hydrogen, is circulating either within the blood-vessels, or is in the nutritive fluid which bathes the tissues. Precipitated from the blood in the manner described, it would explain the atrophy which the gums undergo at their junction with the teeth; the sulphide of lead, by obstructing the circulation through the capillaries, would interfere to a greater or less extent with their nutrition.

In 11 of my 18 cases, colic was present; that is a smaller average than most have noticed. Tanquerel found colic present in 12 out of 14 cases, and Dr. Porter, of Sheffield, in his very interesting thesis on lead-poisoning, found it present in 27 out of 30 cases. Combined with colic, there is generally a history of constipation, occasionally of nausea and vomiting. As a rule, the attacks do not last long; rest from work and the use of saline purgatives, sulphate of magnesia and iodide of potassium, and the use of baths, being sufficient in most to bring about a cure in a few days.

Of the tendinous swellings, mentioned by Ferrier as forming on the tendons at the back of the wrist, and of neuralgic pains in the muscles and joints, I have not seen anything, nor do we in Newcastle see anything of gout and its relation to lead-poisoning—a strange fact, knowing the frequency with which it is noticed by London physicians. We get the kidney-affection, as I shall speak of later on. I have met with rheumatism, but in Newcastle I have never yet seen gout caused by lead-poisoning. In this, I believe I am giving expression not only of my own experience, but of that of my colleagues. I find menstruation profuse and frequent a very common symptom amongst all classes of women, and the same remark applies to abortion. How far this menorrhagia has to do with causing the peculiar anæmia or cachexia, it is impossible to say. The fact that saturnine cachexia is met with in males as well as females, shows that it is not all due to loss of blood; that some specific effect, in other words, is produced by lead upon the blood. The blood examined by Gowers' hæmacytometer showed in every case a marked diminution of the coloured corpuscles, from three to four millions in each cubic millimètre.

I have noticed, too, slight increase in the number of white cells. There was, I may remind you, frequent and profuse epistaxis in Sanderson's case. As for the large bullæ, which suddenly, and with pain, appeared on the hand and foot, and which soon became purulent, I offer no explanation.

Of the cerebral phenomena met with in lead-poisoning, and to which the term *saturnine encephalopathies* has been applied, epileptiform convulsions are the most common. By many writers they are regarded as occurring late in the disease. I cannot say this is my experience. Preceded, as these fits generally are, by intense headache, vertigo, and dimness of vision, we meet with them, and that without prodromata, in young women who have worked only a few months amongst white lead. Too frequently, indeed, they are ushered in suddenly, and are the first indications of lead-poisoning. I am not referring to the headache, vertigo, and epileptiform convulsions due to uræmic poisoning, but to those which occur early in the course of the disease, and when the urine is free of albumen. Such symptoms we can only regard as specific, and due to a special action of lead upon the brain. The convulsions which come on late in the course of the disease, when the urine contains albumen, are in all probability the result of uræmia. In the brains of those who have died from lead-poisoning under my care, who, during life, suffered from convulsions, nothing abnormal was found after death, more than the hydræmia (pallor and œdema) seen in Bright's disease. No lead was found in a portion of Sanderson's brain, submitted to chemical analysis by Professor Bedson—a fact which forces us to acknowledge in his case a causal relationship between the kidneys and the fits. It is more difficult to account for the noisy, and, at times, maniacal, delirium which was present. At times loud, boisterous, and unconscious, Sanderson could occasionally be suddenly brought to understand where he was, and to answer rationally, only to wander off again, however. The subject of transient deafness, he was also the victim of temporary amblyopia. Completely blind when we approached his bed, he frequently became able to see us, and even to count objects held before him ere we left. When conscious, he was always in a state of dread, and his one complaint was intense weakness.

Though a late symptom, in the case here recorded, obscurity of vision, temporary or permanent, and even complete loss of vision, are frequently met with early in the illness. In the transient form of amblyopia, which comes on suddenly, and disappears just as suddenly, no changes may be observed in the disc or retina on ophthalmoscopic examination. An anæsthetic condition of the retina probably explains these cases. That lead acts directly upon disc and retina, there is little doubt. There is a neuro-retinitis due to lead-poisoning. I do not believe that the intraocular changes in plumbism are always secondary to disease of the kidney.

In many of my cases, marked neuro-retinitis existed long before albumen appeared in the urine; nay, more than that, I am inclined to think, from Sanderson's case, that a plumbic and albuminuric neuro-retinitis may run side by side. A girl, who is at present upstairs, has most marked optic neuritis, associated with intense headache, but the urine is entirely free from albumen. She had only worked a few months in the lead-factory, when cerebral symptoms developed, and we find her to-day with her optic discs swollen, their edges obscured, the arteries small, and veins swollen, no hemorrhages. Sanderson's case was one of longer standing, and in him the discs were mottled, their outline irregular, and borders ill-defined, while here and there large patches of hemorrhage were noticeable, and the vessels were obscured in their course by a dense whitish exudation. It is difficult to say how much of this was due to the disease of the kidneys. A pale zone surrounding the retinal arteries, I have occasionally noticed, in those who are suffering from lead-poisoning, and in whom there is no albuminuria. In others, the disc is the seat of a primary atrophy. Here the sight is naturally much affected, and the blindness is progressive; conditions explained by the extreme change which the nerve-expansion has undergone. For an atrophied disc there is little hope; for an œdematous one, always the chance that the fluid may be absorbed, and the nerve-terminations be little the worse for their temporary compression.—*British Med. Journal*, Oct. 17, p. 732.

[See 'Lead-Poisoning—Treatment' in *Synopsis*.]

17.—RELATION OF LEAD POISONING TO RENAL DISEASE.

By THOMAS OLIVER, M.D., Newcastle-on-Tyne.

Garrod (I quote from Warburton Begbie's papers, Sydenham Society's publication) was the first to draw attention to the relationship between lead-impregnation and gout. Although we see many cases of lead-poisoning in Newcastle, we seldom meet with gout as one of its manifestations. I have seen one or two cases in which there has been co-existent rheumatic arthritis, of the wrists particularly, and three or four in which the heart and pericardium have been affected; but I do not remember seeing one case in which gout has been associated with lead-poisoning, although after death the kidney has been found contracted and puckered, but not red. It is possible that the explanation lies in the different habits of the working-classes in London and the north. In both of the cases recorded by Dr. Begbie, there was a history of the intemperate use of beer and porter, drinks which have always been regarded as having an influence in the development of gout.

Dr. Garrod found, in his cases, that the blood was rich in uric acid, while the urine contained a deficiency of it, and in Dr. Begbie's two cases the amount of uric acid eliminated from the system was

diminished. In the early stage of all my cases, the daily amount of urine was much in excess of the normal. It was of low specific gravity, and always contained a marked deficiency of urea. This has gone on for long, without albuminuria appearing, and what are we to regard as the explanation? When albumen has been present in the urine, the deficiency in the elimination of urea has not been interfered with. I think pathologists have laid too much stress upon interstitial nephritis as being the constant and typical anatomical change met with in the kidney in lead-impregnation. The kidneys I have seen have been certainly very much smaller than they ought to have been. Their cortex has been adherent, their stroma has been increased, but there has been a degree of tubular, as well as intertubular, nephritis. Many of the renal cells have been seen to be voluminous, their contents undergoing fatty granular degeneration, while others have been completely broken down, and filled the tubules with their *débris*.

I am inclined to believe that lead acts as a special poison to the renal cells—paralyses their function, and hence, as the result of this low form of irritation, of which the kidney is the seat, more blood naturally passes through it in a given time, and the balance of the removal of waste is sought to be attained in the larger quantity of urine which is eliminated. This in no way specially raises the question of whether urea exists preformed in the blood of the renal artery, the renal cells simply removing it, or whether the urea is formed in reality in the renal cells themselves. If these cells have their function paralysed, then, according to the one theory, the urea which is already formed will go on increasing in the blood, producing its own special effects; whereas, by the other theory, only its elements would accumulate.

Physiology teaches us that urea exists in the blood of the renal artery, and that the liver is the organ which contributes most largely to its formation, the primary source being the nitrogen of the food, and yet I cannot say that my clinical experience is at one with this teaching. An appeal is made to pathology to support the view that the liver is the source of urea. In acute atrophy of the liver, we are told (Foster's *Physiology*, p. 439) that urea disappears entirely from the urine, and its place is taken up by leucin and tyrosin. These, the products of the pancreatic digestion of nitrogenised food, are taken up by the portal vein, carried to the liver, where they are unacted upon by the diseased hepatic cells (which, had they been healthy, would have, in all probability, formed urea), and afterwards, entering the general circulation, pass out of the system through the urine in the same form as they entered the blood. Without denying the presence of leucin and tyrosin in the urine of patients suffering from acute atrophy of the liver, I maintain that too much has been made out for the liver in its relationship to the formation of urea. In Sutugin's case of acute atrophy

of the liver (*London Medical Record*, April, 1885), the urine is stated to have contained bile, albumen, leucin, and tyrosin, also a normal amount of urea.

An isolated case goes for little; but what is our experience in other forms of liver disease? I find that, while in Bright's disease the urine has contained a percentage of urea varying from .87 to 1.5, the urine of patients suffering from cirrhosis of the liver has shown a percentage of 3.5, and that, too, in a case which terminated fatally, and where, after death, a very large portion of true hepatic tissue had been replaced by the dense white fibrous bands frequently met with in that disease. Here then, in a case—not one only—where the supposed urea-forming organ is diseased, more urea is passed off by the urine than in cases of Bright's disease, where the liver has not been much, if at all, at fault, structurally at least. While working at this subject, I have been interested in the facts revealed by a chemical analysis of effusions—pleural and abdominal—in various diseases. I have found urea present in the effusion of pleurisy, in the ascitic fluid of cirrhosis of the liver, and in abdominal effusions in Bright's disease. Add to these the urea-eliminating function of the skin, and we at once see that it requires no highly specialised cell to remove urea from the blood; that, while the cells of the convoluted tubules of the kidney undoubtedly excrete urea, the same substance, owing to its extreme solubility, must pass with the urine through the glomeruli. We would naturally expect, if the kidney is simply an excretor, and the liver the chief organ forming urea, that, in cases of Bright's disease, where the kidneys are at fault, and the liver fairly healthy, and especially, too, as the urine in these cases generally shows a deficiency of urea, that, owing to its retention in the blood and system generally, any serous effusion met with in this disease would exhibit a high percentage of uræa. Now, my experience is just the opposite of this. The serous effusion of pleurisy in otherwise a very healthy man contained .236 per cent of urea; the ascitic fluid of advanced cirrhosis of the liver, .168 per cent.; the same percentage, too, was met with in another case of hepatic cirrhosis; while the abdominal fluid of a case of large white kidney contained only .101 per cent. of urea. Making every allowance for the difference in the amount of the various effusions, and for the difference in the diet of the patients, I fail to see, on the theory of the liver-origin of urea, why, in those cases where the liver is diseased, not only does the urine show a higher percentage of urea, but abdominal effusions in that and other diseases show a higher percentage of urea than the same in Bright's disease, wherein we are told urea is retained in the blood. These results have made me doubt the high urea-forming power ascribed to the liver, and have somewhat shaken my belief in the relationship of the highly organised cells in the kidney to the urea which is said to pre-exist in the blood.

All this is by the way, so far as lead-poisoning is immediately concerned. What I have found in plumbism is that, as a rule—and this applies particularly to women—whether the urine is albuminous or not, it is passed for a long time in large quantity, is of lower specific gravity than in health, and contains a deficiency of urea; that, sooner or later, the urine becomes albuminous, and then cerebral symptoms, which already may have been present, become increased in severity; that the kidneys in young people, particularly women, become frequently early affected with the disease, and often lead quickly to a fatal termination, while motor trouble may be absent from first to last; that acute cerebral symptoms, such as cephalalgia, temporary amblyopia, and optic neuritis, are frequently the first symptoms of the disease; that in these cases the urine is generally found of low specific gravity, is passed in larger amount than in health, shows a deficiency of urea; and, as the urine in such does not always contain albumen, the cerebral symptoms must be regarded either as the toxic result of lead acting directly upon nerve-tissue, or indirectly, in which it is aided by the inadequate manner in which the kidneys are removing waste-material from the body. By these means, and not upon albuminuria, as some maintain, do I seek to explain the occurrence of cerebral symptoms early in the course of the disease. The effect is analogous to that produced by many poisons. The action of lead upon the system may be local, as in cases of “dropped wrist” pure and simple, where the lesion is either at first a myositis, followed by an ascending neuritis, or is primarily a peripheral neuritis; or, more central still, is in the anterior horns of grey matter of the spinal cord, causing anterior poliomyelitis. Lead acts more injuriously upon nerve tissue than upon any other, disturbing in the most serious manner its functions without producing any visible change in its structure. *Post mortem*, though death has apparently been caused by the condition of the brain, nothing may be found in that organ to explain it.—*British Medical Journal*, Oct. 17, 1885, p. 733.

18.—ON COCAINE POISONING.

By the EDITOR OF THE LANCET.

Experience in the use of cocaine as a local anæsthetic is beginning to prove the necessity of some degree of caution as to the quantity used, as several cases where symptoms of cocaine poisoning have occurred have been up to the present time reported by various observers widely separated from one another. Knapp described headache, vertigo, nausea, tottering gait, pallor of the skin, and cold sweat as the result of daily hypodermic injections of thirty-five drops of a 4 per cent. solution, with instillation of a few drops of the same solution in the conjunctival sac. G. Mayerhausen, of

Freiburg, after applying fifteen drops in two-drop doses, at intervals of from five to eight minutes, to the eye of a little girl of twelve in whom the lacrymal secretion was so copious that he felt sure that half the application was lost, or that the total quantity of cocaine which was capable of producing any effect was probably not more than 0·005 gramme, found headache occur immediately after the operation, which was followed by irritation in the throat and great nausea, with some temporary paralysis of the tongue, from which unpleasant effects she did not recover for twenty-four hours. Peck, on using cocaine on a lady on whom he performed tenotomy, observed a marked paleness come over her face. Reich recently reported two cases in the *Russkaya Meditsina* where similar toxic symptoms occurred, the one being a girl of ten years of age, the other a woman of sixty. In both cases a 2 per cent. solution was employed, and the quantity used did not in either exceed fifteen drops. Stevens mentions a case in which faintness and cold perspiration were observed, but which he thinks were perhaps due to nervousness, as on a subsequent occasion this patient suffered no ill effects from cocaine. He had, however, another case where seven or eight minims of a 4 per cent. solution produced spasm and loss of consciousness in a healthy male subject. Quite recently an account has been published by Dr. Bellyarminoff, of St. Petersburg, of five cases where the use of a 4 per cent. solution in various eye operations was followed by headache, vertigo, nausea, vomiting, delay in the healing of the corneal wound, and in some instances by traumatic keratitis. All the patients were elderly females, in a more or less emaciated condition. It was found that ice and morphia were ineffectual in arresting vomiting, and that the best treatment was wine. In some of the patients a subsequent operation was well borne by using a 2 per cent. solution and limiting the number of drops instilled. Dr. Bellyarminoff remarks that when cocaine is badly borne the patient is generally a female, and aged, or badly nourished. He thinks it safer to use a 2 per cent. than a 4 per cent. solution. Finally, it must be added that cocaine has been charged by Keyser, of Philadelphia, with causing a tendency to panophthalmitis after cataract operations, he having found this serious complication occur in three cases out of seven in which he used the drug.—*Lancet*, Nov. 7, 1885, p. 863.

19.—ON DIAGNOSTIC DELIRIUMS.

By B. W. RICHARDSON, M.D., F.R.S., Editor of the *Asclepiad*.

In the case of the acute febrile diseases, the cause of the delirium is active and evanescent. It occurs at a certain stage; it passes away at a certain stage. It is as if, for a time, the person affected had been placed under the influence of some narcotic drug or vapour; and it is quite reasonable to suppose that, for a

time, there is developed in the body of the sufferer some toxic agent, which by its presence so disturbs the mental surface as to produce the irregular vibrations which make delirium. This view is supported by the analogies of the deliriums with those caused by certain toxic agents. Thus, the delirium of typhus is very like the delirium produced by methylic alcohol; the delirium of scarlet fever is as closely allied in phenomena to the delirium caused by atropine as the rash of the fever is to the rash caused by the same alkaloid; the delirium of small-pox is like that which can be produced by inhaling sulphur-alcohol (mercaptan) or ethyl sulphide.

Even in some diseases, which are of a more permanent character, and are not of necessity febrile, the phenomena are very closely analogous to those induced by some narcotic vapours. There are certain forms of hysteria so alike to the deranged mental conditions caused by the vapour of amylene, that it were impossible to distinguish the difference by any knowledge short of the actual knowledge of the cause. The same holds good in respect to the action of methylic ether, which, I may say does, without any kind of doubt, produce hysteria, viz. : symptoms of sobbing and laughing, which admit of being classified under no other name.

But when we come to the study of many other cases, like those connected with disease of the heart, or lungs, or lower part of the alimentary canal, there is no such an obvious hypothesis in the way of explanation. We have been accustomed to speculate as to whether in these instances the peculiar character of mind may not be due to some hereditary mental quality or taint, linked with the hereditary taint of disease. Under this idea the disease cancer is often supposed to be always attended with lowness of mind, or what I have called *delirium desperans*. In some instances it is the fact that the disease in its course is marked by despair; but in quite as many instances it is not so marked. For several months past I have had under observation a patient dying slowly from cancer of the breast, and, although the pain has been extreme, rendering life an anguish, there has been no sign of despair.

According to my observation, cancer causes *delirium desperans*, or not, according to the part of the body that is invaded by it. When it attacks the lower portion of the alimentary canal, it causes extreme despondency; but so would other disease in the same part. It strikes me, therefore, that, when delirium from organic disease is present, the character of it depends on the organ attacked, not on the character of the organic lesion; and that the variation which is displayed is from a direct or a reflex influence emanating from the affected part and extending to the mental surface.

In heart disease we can easily understand the attendant deliriums. The disturbance in the central mechanism of the circulation is a disturbance communicated directly to the whole of

the mental surface. As when the pressure is imperfect at the main the gaslights are uncertain, so when the pressure from the heart is unsteady, and the governance of the blood is deranged, the peripheral nervous function is disturbed and aberrant. It would be impossible to suppose anything else than that a man with an intermittent heart should have an uncertain mind. He is a broken-hearted man in every sense of the word. He is as a man undergoing a series of minor syncope from minute to minute. He must be faint in action, indecisive, restless, for he has no steady mental sustainment on which to depend for mental endowment and tenacity. Thus, the cardiac deliriums admit of a mechanical interpretation.—*The Asclepiad*, July, 1885, p. 226.

20.—ON THE TREATMENT OF CHOREA, WITH SPECIAL REFERENCE TO THE USE OF ARSENIC.

By W. B. CHEADLE, M.D., F.R.C.P., Physician to the Great Ormond-street Hospital for Sick Children, London.

[The chief object of the paper from which the following excerpt is taken, is to draw attention to the evidence in favour of the special therapeutic value of arsenic; and, amongst other points of interest, to record the hyperæmia and curious bronzing of the skin to which prolonged arsenical treatment in full doses may give rise—a result not hitherto described.]

A comparison between the results of a large series of consecutive cases treated by different methods with a large series systematically treated by arsenic, would afford valuable evidence one way or other, and I regret that I am not able to supply it as I had hoped; for I find that early records, when I was sceptical as to the value of any treatment by drugs—and used many methods—do not furnish sufficiently precise data for the purpose. But a comparison between the results of cases during a period when arsenic was used only exceptionally, and then intermittently and irregularly, with those of another period, when this was the regular remedy given for the most part systematically and persistently, yields evidence of some value.

Two such terms offer themselves in the earliest period and the latest period of my work at the Children's Hospital and St. Mary's.

Taking those of the first or pre-arsenical period, 62 cases, I find that the average time under treatment in hospital was 36·01 days = 5 weeks 1 day. In the second or arsenical period, 105 cases, the average time of the patients in hospital is 26·6 days = 3 weeks 5·6 days. Of course, statistics may prove anything; but some evidence of the reliability of this comparison is afforded by the fact that the average duration of the disease *before* admission comes out almost identical in the two periods, viz., 63·3 and 63·1 days.

It may, of course, be objected that many other causes have been in operation to shorten the duration in hospital during the later period, such as that the character of the cases has been less severe, or that the patients have been discharged at an earlier period of convalescence. But I cannot find that this is so; the only important factor which, as far as I can see, has varied, has been the arsenical factor.

The plan pursued in administering arsenic has been to commence with doses of three to five minims of liq. arsenicalis in water, or in two drachms of steel wine, twice or three times a day, and to increase the dose by one minim every two or three days, until ten or twelve minims are reached—the usual limit of toleration of the drug. Or the liq. arsenici hydrochloricus may be given, with or without perchloride of iron, in the same way. In some instances ten drops have been given at first, and continued until toxic symptoms developed, but the first method seems preferable, as keeping the system under the influence of the remedy for a longer period before the supervention of gastric disorder necessitates its discontinuance for a time. If symptoms of gastric disturbance or other toxic effects appear, the arsenic is omitted for two or three days, a calomel purge given, and the medicine resumed in somewhat smaller doses, as soon as ever the disturbance has subsided. The drug must not be stopped altogether—as is the usual practice—but pushed, in the fullest doses which are tolerated, and with short suspensions if necessary, until all choreic symptoms have disappeared.

The evil effects of arsenic, so dreaded by the older physicians—cachexia, or serious gastric disturbance—need not be feared. I have met with nothing of the kind. Some nausea, perhaps vomiting, a silvery-coated tongue, occur in most instances, and twice albuminaria has been noted. These symptoms, however, disappear at once on suspension of the remedy and the administration of a purgative.

The due regulation of the bowels forms an essential element in the treatment of chorea on any system, for constipation and a coated tongue are constant accompaniments of the disorder. Such regulation is especially important when arsenic is freely given, from the tendency of this drug to cause gastric congestion, and the administration of simple laxatives, or enemata, after the common fashion, is quite inadequate. Two or three grains of calomel, with or without compound jalap powder, according to circumstances, should be given once or twice a week; simple laxatives may be given also more frequently if the constipation is very constant and obstinate.

There is, however, one effect of the continued administration of full doses of arsenic to which I would call special attention, because it is inconvenient, and because I believe it has not been

previously recorded—and that is, discoloration of the skin, *Arsenical bronzing*. I have observed it in four cases. The discoloration in the most extreme form closely resembles that met with in the lighter staining of Addison's disease;—a distinct mottled bronzing, most intense in the axillæ, the groins, the flexures of the thighs, and under the knees, but very marked also on the neck, the abdomen, and the small of the back, not in patches, but fading gradually away on the chest and extremities, and not affecting the face.

I have a patient now under my private care thus changed, temporarily, into a gipsy. Three months ago the bronzing was so great as to be cause of some alarm, and some carping by the parents; but when I saw the patient a few days ago it had sensibly faded, and will, I have no doubt, gradually disappear. In two of the other cases the staining has entirely gone. In one of these (*Case 3*) it was very deep and general. Now, six months later, he is free. I have seen one case in which discoloration was permanent: a woman who came under my care years ago, and who had been under treatment by large doses of arsenic for some two years, prescribed for the cure of alopecia areata by a well-known dermatologist of the time. She was under my observation for seven or eight years, and she remained brown as ever until the time of her death.

The precise mode of action of arsenic in chorea is not clear. It is partly due, I imagine, to the physiological power it possesses of increasing the blood-corpuscles, both red and white, at any rate, in anæmia; partly perhaps to the influence ascribed to it of diminishing the irritability of motor nerves and muscles, or to a property indicated by Trousseau when he spoke of its giving greater power to the lower extremities. There must, however, be some further source of nerve control beyond this which is yet untraced.

In conclusion, I must put in a protest in advance. I would not have it supposed that I regard the whole treatment of chorea to consist in pouring so many doses of liq. arsenicalis down the patient's throat.

There are many other essential measures to be adopted in the successful management of chorea—many other drugs besides arsenic which beneficially influence it. When the jactitations are severe, and sleeplessness intervenes, sedatives, especially chloral and bromides, and perhaps morphine, with chloroform in urgent cases, render invaluable service. I have, I think, seen life saved by the free use of sedatives in violent chorea. Constipation, as I previously stated, is an almost invariable accompaniment of the disease, and the regulation of the bowels by simple laxatives and an occasional dose of calomel are an important part of practice. Iron is most useful in combination with arsenic to remedy anæmia.

Rest and proper feeding are of the first necessity; while shampooing, and the ordered movements of calisthenics, all find an appropriate place.—*Practitioner*, Feb. 1886, p. 88.

21.—ON THE TREATMENT OF CHOREA.

By RICHARD CATON, M.D., M.R.C.P., Professor of Physiology in University College, Liverpool.

It is useful to know, in the first place, what is the natural course and duration of the disease if left alone. Now, fortunately, the observations of Drs. Grey and Tuckwell, of the Radcliffe Infirmary, Oxford, enable us to judge very fairly what is the duration of chorea when no special treatment is employed. They treated 39 cases by rest, good food, along with suitable treatment of concurrent symptoms, but they gave no drug to cure the chorea. The average duration of these 39 cases was $69\frac{1}{2}$ days, say 10 weeks or 70 days.

Now what is the duration of treated cases? Dr. Andrew of Bartholomew's Hospital, says the average duration has been 73 days. Wicke, of Leipsic, says the average duration of his 125 cases was 89 days. Sée, of Paris, puts down the average of his 117 cases as 69 days. More recent methods of treatment diminish the duration. Dr. Cheadle, in a paper read at the Harveian Society in September, gives 5 weeks or 35 days as the average duration of 160 cases.

Time would fail me if I were to enumerate the drugs proposed—opium, zinc oxide sulphate and valerianate, physostigma, curara, bromide of camphor, arsenic, potassium and ammonium bromides, strychnine, tonics, cod liver oil, chloral, chloroform, conium, ergot; the use of massage and of gymnastic exercise, electric baths, ice or ether spray to the spine, the constant current, and static electricity—all these and many other methods have their advocates.

I think the first thing to be secured is rest. The patient is put in a comfortable bed and kept there. Bowels kept in a normal state; a plain nourishing diet is given, from which all nerve excitants, such as tea and coffee, are excluded. As in sleep chorea ceases, I do everything I can to favour sleep, and I give moderate doses of chloral at first with this object. Chloral seems to me better than any other hypnotic in these cases.

I endeavour to prevent all voluntary movement, so as to give the affected parts as much rest as possible. I am fond of bandaging any limb in which the movements are specially active.

As an example of the advantages of the method I may quote the case of W. B., a schoolboy, æt. 12, who was subject to monochorea in right arm; the disease had lasted six months. He came to the Northern Hospital on the 11th June, 1884, and was put on doses of

m. v. of liq. arsenicalis. I had the right arm bandaged. He went out in nine days perfectly well, and having full and steady use of the arm.

The most powerful and efficient specific remedy, so far as my experience goes, is *arsenic*, given in progressive doses; and along with it I give iron or cod liver oil. Why should arsenic act thus? It is given empirically, still there are theoretical reasons for its use. Arsenic arrests various spasmodic diseases. It seems to lessen the activity and vitality of protoplasm, and it undoubtedly tends to paralyse the spinal cord, and to diminish the activity of motor and sensory nerves. Thomas Martin, of Reigate, was the first to introduce it, in 1813, but its value has not been fully recognised, because it has not been generally given in sufficiently large doses. Dr. Begbie did good service in insisting on progressive increase of the dose.

In Paris and at Lyons it is used subcutaneously, with excellent results. The average duration of 16 cases thus treated was 32 days. It is said to act more rapidly and not to cause any gastric irritation.

Judging from the pathology of the disease, one would expect good results from ergot. Some who have tried it speak very favourably of the effects.

If the chorea be violent, chloroform may be needed, and if there be risk of abrasion of skin, the parts in danger should be thickly padded with wadding.

My own experience is a small one, but so far as it goes the treatment I have suggested has proved very satisfactory. The average duration of 13 cases so treated, from commencement of treatment to patients' departure from the hospital quite well, has been 28 days. This includes one case in which paralysis followed, and in which the patient remained nearly four months in the hospital free from chorea, but paralysed. If I exclude that case, my average is 21 days. Before I adopted the method described above, the duration of my cases was much greater.—*Liverpool Medico-Chirurgical Journal*, Jan. 1886, p. 150.

22.—ON THE TREATMENT OF ACUTE TRAUMATIC TETANUS BY CURARE.

By J. S. M'ARDLE, F.R.C.S., Lecturer on Surgery, St. Vincent's Hospital, Dublin.

[Mr. M'Ardle publishes, with comments upon the treatment followed, the following remarkable case of tetanus treated to a successful issue by curare. We reproduce the narrative of the case in full, and also the more important of the author's observations.]

Case.—The case to which I desire to call attention is that of—
Murphy, aged twenty-one years, admitted into St. Vincent's Hos-

pital suffering from strangulated inguinal hernia. His general health was good, and as he was anxious to have the hernia cured, I cut down on the external abdominal ring, stitched the neck of the sac with fine chromosised catgut, and brought the walls of the inguinal canal together with strong catgut. Everything went well until the tenth day after the operation, when he complained of pain and tenderness over the lower part of the abdomen and difficulty in opening his mouth. On the twelfth day after the operation the hernia came down during a spasm of the abdominal muscles; his condition on the 13th was one of extreme distress. During the previous night he had bitten his tongue very severely several times, and slept badly. His condition was as follows:—His abdomen was hard and tympanitic; dorsal muscles powerfully contracted; patient resting on occiput and heels; upper eyelids drawn down; eyebrows raised; pupils greatly contracted; face wore an anxious expression, and he complained very much about his tongue, which was swollen and deeply indented by the teeth, which could only be separated a quarter of an inch; breath very offensive; all the voluntary muscles were in a state of spasm, the slightest noise or disturbance increasing their rigidity and rendering the patient extremely miserable. There had been no evacuation of the bowels for three days, notwithstanding the fact that calomel in ten-grain doses had been given each day, and bromide of potassium and chloral hydrate regularly. This state of affairs lasted for two days longer, and the patient was almost exhausted, when I injected one-half a grain of curare with the following effect:—Immediately after injection dyspnœa set in, and he complained of uneasiness in the cardiac region; his pulse became uncountable, his face purplish, and his pupils dilated. He complained of dimness of vision and of seeing double. In seven minutes after injection the dorsal muscles relaxed; the abdomen became slightly soft; perspiration broke out over his face and chest, and, sinking down in the bed, he fell into a sound slumber, which lasted three hours, during which time he was not disturbed by spasms. In the fifth hour the bowels were evacuated, and it was only at this time that spasms began to reappear. In the sixth hour he had another dose of curare, which acted as well as the first. Purgatives of every kind were avoided, and yet the bowels acted regularly; and although the patient occasionally suffered a little, he was in a state of comparative comfort from the time I commenced the curare until the spasms disappeared. I noticed that as long as his pupils remained dilated, spasms, if they occurred at all, were very slight, and this dilatation rarely passed off until four or five hours after injection. Consequently I ordered $\frac{3}{4}$ gr. to be given every sixth hour, with the result that the patient suffered very little until he was quite restored to health. He was three weeks under treatment, and the effects of the curare—as dilatation of pupils, quick pulse, incoordina-

tion of muscles—lasted for six days after the injection was omitted. The slight variations from day to day only show that the urinary secretion increased after the first few days, at which time the patient complained of thirst. For the first few days after injection there was a considerable flow of saliva, mixed with pus and mucus, and the discharges from the bowels were very dark and foetid.

Remarks.—It will be noted in the above case that in from 6 to 10 minutes after the injection of curare the muscles became relaxed, with the exception of the abdominal ones; respiration became laboured, lips cyanotic, pulse very rapid, pupils widely dilated, and that in no instance did more than 10 minutes elapse after injection without the most marked relief being obtained. An important point in connection with this case is the fact that, under the influence of curare, the bowels were evacuated regularly, although constipation was the rule before its administration. This I look upon as evidence of the absence of tetanic spasm of smooth muscles and of the power of curare to keep the sphincters in a state of relaxation.

Now that I have noted the effects of curare in this case of more than ordinary gravity, I am desirous of calling attention to the method of administering the drug. Since it loses all its power when taken into the intestinal tract, we have only to consider its action when employed epi-, en-, and hypo-dermically. When applied to unbroken surfaces it has little or no effect, and hence its use in this way is now completely abandoned. The endermic method is also unpromising, as the varying conditions of the surface to which it is applied cause the action to be very uncertain. Hypodermic injection requires care, as, even when used in this manner, the drug may act inefficiently. In looking over the history of cases unsuccessfully treated by curare, one is struck by the fact that failure (in the majority of them at least) depended rather on the method of administration than on the inactivity of the drug. The rules which should guide us in the use of curare are:—

1. If a watery solution be used it is necessary to dissolve a fresh supply every few days, as the active principle with some resinoid materials precipitates early.

2. In injecting, the needle should be passed horizontally under the skin, so that rapid action may be avoided; in my case, whenever the needle was allowed to enter deep structures the effects of the drug became alarming.

3. The dose, to be of service, must be large, and frequently repeated— $\frac{1}{2}$ to $\frac{3}{4}$ grain every fifth hour; some even go so far as to state that $\frac{1}{2}$ grain is the proper dose for an adult.

4. The solutions should be filtered, else very troublesome abscesses form at points of injection; such abscesses occurred in the early part of my case.

Some few writers advocate the use of small doses ; the history of their cases, however, shows the worthlessness of this opinion, since the ones which have not succumbed under treatment by small doses were exceptionally mild, and should not be classed amongst cases of acute traumatic tetanus.

One great difficulty in connection with the treatment of tetanus by curare lies in the fact that no two specimens of this drug agree in strength, and hence experimental injections (into rabbits or dogs) should be made before using a fresh sample.

The amount of cardiac distress produced by curare is an objection to its use ; the heart beats become innumerable owing to the paralysing effect of the drug on the inhibitory fibres of the vagus. It is possible this trouble may be overcome by using nitrate of pilocarpin, which has an opposite effect on the cardiac nerves.

The fact that we are not acquainted with a reliable antidote to curare is also objectionable. When the Indians desire to prevent its action they immerse the animal in water and give it large quantities of rum, or they administer the juice of the sugar-cane. To keep up artificial respiration is probably the only thing we can do, unless, indeed, ligature or amputation above the point of entry of the poison. Carbolic acid is a powerful antagonist to the drug, but the difficulty of introducing it without injurious effect renders it valueless. Pilocarpin, although possessing an opposite action on the heart, will scarcely counteract the ill effects of curare.—*Dublin Journal of Medical Sciences, Feb., 1886, p. 124.*

23.—ON MEGRIM OF GOUTY ORIGIN, AND ITS TREATMENT BY DIET.

By A. HAIG, M.B.(Oxon.), M.R.C.P., Assistant-Physician to the Metropolitan Free Hospital.

[Dr. Haig believes that many cases of megrim are closely allied to gout, and have their origin in the accumulation of uric acid in the blood. In support of this view he refers to cases in his own practice, and to the writings of Trousseau, Hutchinson, and others. The use of salicylate of soda is also referred to.]

I think that under the term megrim are probably included, for want of definition, several different forms of headache ; but where a patient suffers from chronic and recurring headache for a considerable number of years or all his life, and has a family history either of manifest or quiet gout, while several of the minor signs of gout are present in his own person, I think that there is a real connection between that headache and the history and other signs, and that the diet treatment may be resorted to with considerable hope of success.

And, further, as it is by no means uncommon to find in the post-mortem room that there are urates in the joints of persons who are not known to have had manifest gout, and that such urate

deposits are often associated with granular kidneys, hypertrophied heart, degenerate vessels, and cerebral hemorrhage, I think that many people who have the forms of headache and the history above described, and are easily affected by butchers' meat, and indeed resemble cases of Bright's disease in the manifest benefit they often derive from leaving it off altogether; I think that many of these cases tend to degenerate in this direction as years go on, and perhaps finally to enter the post-mortem room under some or all of the conditions above mentioned. So that I am inclined to believe that the diet treatment of these forms of headache may mean much more than the alleviation of their pain, and that if it is fortunately begun early in life it may possibly be the means of preventing or greatly delaying the more serious and fatal developments.

Then again—causes such as mental effort, worry, anxiety, any other depressing influence, as over-fatigue, exposure, sexual or other excesses, said to precipitate attacks of gout, often bear the same relation to megrim; and many symptoms said to be premonitory of gout may also precede or accompany the onset of megrim, as gastro-intestinal disturbance, giddiness, irritability, impaired mental vigour, low spirits, restless sleep, unpleasant dreams, numbness or tingling in the limbs.

That women suffer from megrim more than men is partly due to their more sedentary mode of life; active exercise in megrim, as in gout, being both curative and preventive. And, again, the general disturbances which accompany menstruation are of a depressing nature and would be expected to act, as it appears they do act, in predisposing to attacks, and in these cases the attacks are much less frequent after the menopause.

The action of drugs in megrim and gout is remarkably similar. Trousseau and others have used colchicum with benefit in megrim, and other observers have remarked on the similar curative effects that certain purgatives, as calomel, have in both gout and megrim; and, again, others have used iodide of potassium with considerable success; but the great value of salicylate of sodium in some of these headaches is more remarkable still; it seems to me to be most certainly curative and not merely palliative, as it removes the concomitant gastro-intestinal troubles along with the headache. Thus a dose of bromide of potassium and sp. ammon. aromat. will sometimes remove a slight headache, but the other conditions remain and the headache will probably return; but with salicylate treatment it is quite a different matter, the headache is gone once and for all and shows no signs of return for a considerable period; its action in this respect is very similar to that of calomel, and, like calomel, it seems to free the secretions of the mouth, and, at the same time, slightly relaxes the bowels.

The dose of salicylate that I have used has been the small one of

two to three grains repeated every quarter or half-hour for three or four doses or more, as recommended by Dr. Brunton, and begun when the headache first comes on: this is sufficient. A patient might carry 3i of the powder in his pocket, and take a little when a headache threatens, and he would soon learn to judge the proper dose by sight.

And as to diet, from which butchers' meat, cheese, beer, wine, and spirits are absent, I will only say that a further experience of it since my former article on the subject has more and more convinced me of its value in such cases. The patient whose case I before narrated has kept to this diet continuously, and I may safely say that he has lost nothing in health, strength, or weight during the three years and a half he has now done so, a result which may be a surprise for those who consider that some or all of the excluded articles are necessaries.

The diet treatment has not been so successful among hospital patients, but that is rather to be expected, as they have much less power to change their diet than patients in better circumstances, and are much more superstitious as to the possible bad effects of leaving off meat. Still, even here there are not a few indications of the value of this treatment, and several of my patients have expressed themselves very decidedly as to the benefit derived from leaving off meat, or have noticed that on returning to meat the headaches got worse; and one case, that of a boy of fourteen, gave unexpected evidence in the same direction. He said that he had suffered from headaches since he was quite small, but that they had been worse during the last three months; and on further inquiry it came out that during this period he had been working for a butcher, and had been having more meat than before. He said he now had a headache every week. He was ordered to take no meat, and he returned next week saying that he had had no headache, only a threatening of one which passed off.—*Practitioner*, March 1886, p. 185.

DISEASES OF THE ORGANS OF CIRCULATION.

24.—ON ACUTE PARENCHYMATOUS MYOCARDITIS.

By SAMUEL WEST, M.D., Physician to the Royal Free Hospital, and to City Hospital for Diseases of the Chest, Victoria Park.

[Dr. West, in concluding an exhaustive review of this clinically obscure condition, adopts Virchow's classification of inflammation of the myocardium, which divides the cases into two groups—those affecting the interstitial substance of the muscle, and those affecting the muscle substance proper. It is with the latter class only that the paper deals. The observations are founded upon the records of eight cases, which stand as follows:—1. A case diag-

nosed as one of myocarditis and the lesion found post-mortem, together with disease of the liver. 2. A similar case published by Leyden, where in addition there was cirrhosis of the liver. 3. A case of a first attack of rheumatic fever, in which sudden death occurred. 4. A similar case, but without post-mortem confirmation (no autopsy allowed). 5. A case occurring in a first attack of rheumatic fever which recovered completely. 6. A case which recovered. 7. A case of old heart disease which recovered. 8. A case of a first attack of rheumatic fever, in which similar symptoms ended in death, and the autopsy revealed acute valvular disease and acute myocarditis.]

The resemblance between all these cases is too striking to be mistaken, and justifies the reference of them all to the same family group, for which I prefer to retain the usual name of "acute myocarditis." An analysis of them presents us with the following facts:—

Sex.—All the cases occurred in males, except the third. This is remarkable, for the liability to rheumatic fever is about equal in the two sexes, and it seems to indicate that there is no necessary connexion with this disease.

Age.—Male, aged 15 (Case 5); male, 16 (Case 8); female, 24 (Case 3); male, 27 (Case 1); male, 30 (Case 7); male, 34 (Case 2); male, 36 (Case 4); male, 44 (Case 6). All the cases occurred, therefore, before the middle period of life, and some at quite an early adult age. This serves to mark off distinctly the acute affection of the heart described in them from the gradual failure of the heart due to fatty change in old people i.e., from the common form of so-called fatty heart.

Cause.—In four cases the attack could be distinctly attributed to rheumatic fever; in three of these there had never been a previous attack, and two of them died. In the fourth there had been three previous attacks, which had left extensive valvular mischief behind. In another case the patient had suffered previously from rheumatism, but not at all during the present illness. In a sixth case there was a doubtful history of rheumatism. In the two remaining, a rheumatic history was absent. Both were heavy drinkers, and had been in want recently, and one of them had suffered not long before from syphilis. Both of these died.

Mortality.—This is high. Out of the eight cases recorded here, five died, three quite suddenly. In two cases recovery was, so far as could be judged, complete.

These facts would seem to prove what is commonly stated, that myocarditis generally occurs in the course of rheumatic fever, but pains in the limbs are noted in many of the recorded cases, and in some the ordinary signs of rheumatic affection of the joints are distinctly stated to have been absent, so that the mere occurrence of indefinite aching and pains in the limbs is not conclusive proof

that the case is one of rheumatic fever; and both Kühle and Kôster describe these pains as part of the disease, and as not being necessarily those of rheumatic fever.

Clinical symptoms.—All the patients excepting one were desperately ill. In this one exception (Case 3) there seemed to be nothing in the patient's condition to cause alarm, until she suddenly turned faint, fell back, and died. The prominent symptoms in all were duskiness, panting dyspnoea, with extreme feebleness of the heart and pulse. The temperature was raised in nearly all. In Case 7 the temperature chart was mislaid, and in Case 8 the temperature was normal. In the others it varied much, but never reached a great height, averaging about 101° or 102° , and that for no prolonged period. As there was a rise in temperature in one of the non-rheumatic cases, the explanation must be looked for, not in the rheumatism, but in some other cause, and we may compare with it the rise which is not uncommon in valvular disease of the heart, especially in cases of aortic regurgitation. Although no anatomical explanation of this is forthcoming—*i.e.*, no inflammation or infarcts are found in many cases,—its grave import is well-known, and it may turn out that we shall be justified in referring the rise of temperature to the condition of the heart itself. The rate of respiration was rapid in all the cases. In four there was distinct evidence, in the presence of bronchitic sounds, of congestion of the lungs: but in the other four the cause of the dyspnoea and cyanosis must be looked for elsewhere. The dyspnoea was not of the laboured obstructive kind common in bronchitis, but of that panting character which has sometimes been plainly called cardiac dyspnoea. Jaundice was present to a slight extent in three cases; in two of these there proved to be gross disease of the liver (*viz.*, cirrhosis), but in the third the jaundice was probably due to congestion, for in this, as also in two others in which jaundice was absent, the liver was enlarged at first, and gradually diminished in size as the patient's condition improved. Œdema of the feet was absent in four cases and present in four, though to a slight extent only, and without any ascites in three cases and with ascites in the fourth. The urine was usually diminished in quantity. In five cases it contained albumen in slight amounts, varying from day to day and disappearing with recovery. In the other three albuminuria did not occur. There was no relation between the albuminuria and œdema, the former being present sometimes when the latter was absent, and *vice versâ*. Delirium of a low, wandering kind occurred in six out of the eight cases, and appears to be one of the most constant phenomena. The delirium was associated with drowsiness and heaviness in four out of these six cases, and in three of them uræmic-like twitchings of the limbs and body occurred. In Case 1 these twitchings almost amounted in severity to fits, but although in that case there was a slight amount of

albumen in the urine, the twitchings occurred in other cases where it was absent, and hence they cannot be attributed rightly to uræmia. They are probably evidence of asphyxia. The first case suffered greatly from attacks of faintness, with cold sweating: but though the faintness occurred in other cases, the cold sweats did not. The pulse was in all cases extremely feeble, fluctuating greatly in force and frequency; the tension in the vessels was low, and the pulse wave small and ill-sustained. The rate in most cases was rapid, the slightest effort or excitement sending the rate up many beats in the minute. The extraordinary effect which digitalis had in reducing the pulse-rate observed in Case 6 was also observed and commented on by Prof. Leyden in his case (Case 2). Præcordial pain was a prominent complaint in five cases, and palpitation was frequent. It was to the heart, as the source of all trouble, that the symptoms seemed to point, and it was in this organ that most clinical evidence of disease was found. The cardiac dulness was increased in seven out of the eight cases. In this one the obesity of the patient prevented the cardiac area being determined accurately. The apex was displaced to the left. The increase of dulness was chiefly to the left and upwards, indicating dilatation of the left side of the heart. In Case 6 the diagrams show an increase also to the right, and the dilatation was therefore general and very considerable. As the patient recovered, the area of cardiac dulness contracted in all directions, and at last did not extend towards the right beyond the left edge of the sternum, though it was then somewhat increased towards the left. The sounds were extremely feeble in all the cases. This enfeeblement affected especially the first sound, which in one case could hardly be heard at all. There was no murmur or friction audible at any time in four cases. In another a soft-blowing systolic murmur was audible for a time over the whole præcordial region, and subsequently disappeared. In one other a faint systolic murmur at the apex was audible throughout, and persisted after recovery. This was in an old rheumatic case. In the remaining two there were the permanent murmurs characteristic of gross valvular disease. The clinical symptoms seemed all to point to the heart as the organ in fault, and in those cases in which death took place, and a post-mortem examination was made, it was in the heart that the chief, or in some cases the only, lesion was found; and in three out of the five fatal cases the pathological change was confined to the myocardium, so that the history of the disease is complete.

The present series of cases appeared to me worthy of being put on record together for these reasons: (1) that, although the difficulties are great, the diagnosis of myocarditis can often be quite correctly made; and (2) that myocarditis is, as I believe, not by any means so rare an affection as is commonly stated.—*Lancet*, Feb. 13, 1886, p. 295.

25.—ON OCCURRENCE OF DROPSY IN MITRAL STENOSIS.

By W. H. BROADBENT, M.D., F.R.C.P., Physician to
St. Mary's Hospital, London.

[Dr. Broadbent, in a masterly and exhaustive article upon Mitral Stenosis, comments as follows upon the erratic occurrence of Dropsy in that disease.]

Another fact which has been impressed upon me, in the course of my observation of the various forms of heart disease, is the late stage at which general dropsy supervenes in uncomplicated mitral stenosis. Not unfrequently the subjects of it are free from œdema at the moment of death, and very commonly it is absent when the symptoms arising from the condition of the heart are most urgent; it may set in suddenly after these have lasted for some time. Ascites, again, may occasionally be present independently of œdema, or it may persist after œdema has subsided, occurrences which are altogether exceptional, if not unknown, in other forms of heart disease. When dropsy comes on comparatively early, regurgitation will usually be found as well as obstruction, and the incompetence of the valve may not improbably play a greater part in the production of the symptoms than narrowing of the orifice.

I have met with an extreme degree of dropsy only when there has been tricuspid stenosis, as a complication of the mitral stenosis, and have come, in the diagnosis of this complication, which in most cases does not reveal itself by separate physical signs, to rely upon blueness and lividity of the countenance, and waterlogging of the tissues and cavities.

This conclusion with regard to dropsy, which is a simple expression of my experience, receives confirmation from an examination of 53 cases, abstracted for me by Dr. Phillips, from the post-mortem records of St. Mary's Hospital, and of the 67 cases related by the late Dr. Fagge in his interesting paper on mitral stenosis in Guy's Hospital reports. Of the 53 St. Mary's cases, anasarca was present in 11, and slight œdema in 1, but in two out of 11 there was tricuspid stenosis, and in 7 more mitral incompetence, or some other complication, which in most instances was of itself competent to give rise to dropsy, leaving only two or three to be the effect of mitral stenosis.

In 47 of the cases collected by Dr. Fagge a post-mortem examination was made, and in 7 of these a detailed account of the symptoms and physical signs is given. In 2 out of the 7 there was no dropsy from beginning to end; in 3 others there was fugitive and slight œdema, while the patient was up and at work, swelling of the abdomen preceding, in 1 of these, the pitting of the ankles; in 1 case the dropsy appears to have been marked, but was relieved; in another, it was apparently considerable for a time, but even here it subsided, although present at death.

In this, the only one which at all followed the ordinary course of cardiac dropsy; it is to be observed that the heart weighed twenty-six ounces, which is an unusual weight in uncomplicated mitral stenosis, and the aortic valves were diseased. In 40 cases the post-mortem notes are brief and the clinical records imperfect, and dropsy is mentioned only in 8, while out of this number 2 were complicated by tricuspid stenosis; 1 by aortic disease, the change in the mitral orifice being comparatively slight; 1 by renal disease; leaving only 4 instances in which uncomplicated stenosis had given rise to dropsy. It is, of course, possible that in some of the 32 cases in which no mention is made of dropsy, this may have been due to omission, but in 11 the history implicitly excludes the condition.

In the remaining 20 cases no examination was made after death, but the clinical history is carefully given, and 15 had no dropsy, and 1 only occasional œdema. Another, however, had an enlarged abdomen. Of the remaining 4, 1 had severe ascites only, which disappeared after paracentesis; in another, ascites appears to have preceded general dropsy; and in the remaining 2, in which cardiac dropsy followed the usual course, a systolic murmur of a kind indicative of mitral regurgitation coexisted with the physical signs of stenosis.

The comparative infrequency of dropsy as an effect of obstruction at the mitral orifice, appears to me to suggest an explanation of the paradox which Dr. Walshe so forcibly puts forth as the outcome of his observation, with regard to the relation between heart disease and dropsy, to the effect, namely, that while universal experience demonstrates the causation of dropsy by heart disease, something beyond and in addition to any one or any group of cardiac lesions is required for the production of the dropsy.

Dr. Walshe's propositions (quoted by Dr. Broadbent, but not reproduced here for want of space) are indisputable, but the difficulties arising out of them appear to have their origin in the implied condition that the effusion of serum into the tissues and cavities of the body is the effect simply of venous stasis and of consequent slowing of the circulation through the capillaries. But it is not a question merely of obstruction in the veins, but of pressure in the capillaries, and if *vis a tergo* in the arteries is wanting, the condition under which the exudation takes place does not arise. Of course, whenever the resistance to the return of blood to the heart is such that the pressure in the arteries is unable to overcome it, actual arrest of the onward movement of blood in the capillaries occurs, and life ceases at once; but, short of this, and subject to the production of the degree of intravascular pressure needed to keep up the nutrient outflow into the intertextural spaces, the movement of blood in the capillaries may be very languid. Given a retarded circulation through the capillaries produced by venous obstruction,

the occurrence of dropsy will depend on the pressure of blood in the arteries, and in mitral stenosis the conditions are such as to forbid any augmentation of it. Followed to its source, the pressure in the circulation depends, ultimately, on the left ventricle. Increased resistance in the capillaries is met by the increase of strength and vigor given by hypertrophy, and when disease affects its outlet, compensation is attained by hypertrophy with or without dilatation.

Under certain conditions the left is reinforced by the right ventricle, under all conditions, in fact, in which the pressure in the pulmonary circulation is increased and the right ventricle is hypertrophied, except when such augmented pressure is intercepted by a narrowed mitral orifice. But in mitral stenosis the left ventricle is not hypertrophied, and, in consequence of the narrowing of the orifice, can get no help from the right beyond such as is afforded by the more efficient filling of its cavity. The amount of blood entering it is, in advanced cases, probably less than normal, notwithstanding the increased pressure in the pulmonary circulation, and can scarcely at any time exceed the normal. It is not, moreover, propelled into the arteries with increased force. Although then the veins may be full, and there may be every appearance of backward pressure in the capillaries, the real source of pressure in the capillaries is wanting.

It appears to me that a clear recognition of the reason for the comparative absence of dropsy in mitral stenosis tends to remove the necessity for any active cause beyond and independently of the heart.—*American Journal of Med. Science*, Jan., 1886, p. 61.

26.—ON VENESECTION IN MITRAL STENOSIS.

By W. H. BROADBENT, M.D., Physician to St. Mary's Hospital.

[In his paper on Mitral Stenosis Dr. Broadbent makes the following remarks on Venesection as part of the necessary treatment in the more advanced cases.]

The danger to life consists in the inability of the right ventricle to force the blood through the lungs. Both ventricle and auricle become extremely distended, so much so as to be almost paralysed by overstretching of the muscular fibres in their walls. When the tissues of the heart have undergone degeneration, or when the right ventricle is worn out by protracted overstrain, death may be sudden, either as the result of an effort or motion, or without obvious exciting cause. The fatal termination is, indeed, very frequently abrupt and unexpected, but it is not sudden death while in apparent health, but in the course of illness. The symptoms of overdistension of the right side of the heart are sufficiently conspicuous and familiar: urgent dyspnoea, with more or less duskiness or lividity of the face, which, however, even at this period may not be extreme; cough, which may or may not be attended with hæmop-

tysis; and a small, weak, and irregular pulse, many beats of the heart not reaching the wrist, and in extreme cases scarcely any. The contrast between the weak pulse and the powerful impulse of the heart is very striking, but the impulse felt is that of the right ventricle only, and there is no proper apex beat. The jugulars are distended and pulsating, and an indication, not always looked for, but of the greatest importance and significance, is enlargement of the liver, which may be felt to extend below the umbilicus and across the epigastrium to the left hypochondrium; it is nearly always jogged by the violent contractions of the right ventricle, and may pulsate from reflux into the hepatic veins. Associated with this there may or may not be a slight amount of effusion into the peritoneal cavity; anasarca need not be present, though sometimes it supervenes suddenly while the struggle is at its height, or even when improvement has begun.

Under such circumstances the first and most important thing to be done is to relieve the right ventricle. There are three ways of effecting this: by venesection, cupping or leeching, and purging. Bleeding from the arm or jugular is the most prompt and effectual, and it is certain to come again into more general use as the profession becomes familiar with the remarkable results which may be witnessed in cases apparently hopeless; pulselessness, cold extremities, and the cold sweat of impending dissolution are not contraindications as long as there is power in the laboring right ventricle. While blood is abstracted on the one hand, brandy and other stimulants may be administered on the other; or in desperate cases ether or brandy, or both, may be injected under the skin. It is in private practice that the best opportunities for successful bleeding are met with. In the case of hospital patients there is usually a smaller reserve of strength, and the rest, warmth, care, and nourishment they receive, to which they are strangers outside, make such a difference in their favor that milder measures are sufficient. Leeches may therefore be employed, or cupping, with or without the abstraction of blood. A very suitable situation for the application of leeches or the cupping-glasses is over the enlarged liver. It is not supposed that blood is abstracted from the organ, but the pain usually present in the region of the liver and the sense of fulness and oppression are relieved. After leeches the bleeding may be encouraged by poultices. I have seen recovery so far as to allow of the patient's leaving the hospital after the application of eight leeches in a girl of thirteen, when not only was she cold, pulseless, and apparently moribund, but when stasis in the capillaries of the surface had actually begun, giving rise to large livid patches on the abdomen and elsewhere.

As an accessory to the abstraction of blood in the attainment of the same object, viz., the diminution of the afflux of blood to the overdistended right ventricle, or as the principal means of effecting

it, purgatives are to be employed. A mild aperient will be of no use; the purgation must be decided. Nor is it, in my opinion, a simple matter of purgation to be induced by any method which may happen to be convenient. A mercurial pill or powder appears, according to my observation, to have a greater effect in reducing the liver and relieving the right heart than more powerful purgatives of another kind.—*American Journal of Medical Science*, Jan. 1886, p. 83.

27.—ON REGURGITANT AND NON-REGURGITANT MITRAL MURMURS.

By AUSTIN FLINT, M.D., Professor of Medicine in Belle Vue Hospital Medical College, New York.

[An article upon "The Mitral Cardiac Murmurs" forms Dr. Austin Flint's contribution to the first number of the *International Journal of Medical Sciences*. After a short reference to the writings of Elliottson and Gairdner upon the systolic and presystolic murmur respectively, the author states his own opinion that four distinct mitral murmurs are to be recognised, that is, murmurs produced at and about the mitral orifice, but not always meaning a lesion of the mitral curtains. The four mitral murmurs recognised by Dr. Flint are designated as follows:—(1) the systolic regurgitant; (2) the systolic non-regurgitant, or intra-ventricular; (3) the presystolic, and (4) the diastolic. Each of these four murmurs has distinctive characters which individualise it. After some reference to the defects in existing knowledge, and the great differences of opinion which exist in regard to the number and clinical significance of the mitral murmurs, the writer goes on to say. "It is a fact not to be lost sight of in the study of cardiac murmurs, as of all auscultatory signs, that knowledge of their significance must be based on clinical experience. In cardiac as in pulmonary auscultation, it is not safe to trust to reasoning from principles of acoustics. It will not do to assume from the characters of certain sounds that certain physical causative conditions must exist, or from the existence of certain physical conditions that certain sounds must be produced." "Differences of opinion in regard to explanations need not impair the value of signs in a clinical point of view." Dr. Flint then goes on to speak of the systolic apex murmur as follows.]

A systolic murmur having its maximum of intensity at or near the apex of the heart, transmitted in a horizontal direction to the left of this point, and heard near the lower angle of the scapula, associated with more or less enlargement of the heart, together with weakening of the aortic and accentuation of the pulmonic sound, is an unmistakable sign of mitral incompetence. On this point there is no room for discussion. In a practical point of view

—that is, with reference to prognosis—it is important to bear in mind the fact that a very little regurgitation may give rise to a loud murmur; that mitral incompetence may be well tolerated for an indefinite period, and that life may continue for a quarter of a century or longer. These statements are based on cases under the writer's observation.

Let it be supposed that a systolic murmur is present, having its maximum of intensity at the apex, heard, perhaps, over the body of the heart, but not transmitted to the left, nor heard on the posterior aspect of the chest, and the heart not enlarged. There is no evidence that such a murmur is due to mitral regurgitation; the mitral valve may be perfectly competent. This is a mitral non-regurgitant or an intraventricular murmur. Such a murmur is the rule in a primary attack of rheumatic endocarditis, in chorea, in certain cases of anæmia, and sometimes when it has no apparent pathological connections.

A mitral non-regurgitant murmur may persist for a short or a long period and disappear, leaving behind no symptoms or signs of cardiac disease. The writer could cite from his records instances in proof of this statement. The fact is not easily explained if it be assumed, as is generally done, that such a murmur is evidence of mitral incompetence. While it is true, as has been stated, that mitral incompetence may be well tolerated indefinitely, it must be admitted that in not an inconsiderable proportion of cases the incompetence increases more or less rapidly, and results in enlargement of the right heart by dilatation, accompanied by dyspnœa, general dropsy, and ending in death. Hence is obvious the practical importance of the recognition of a mitral non-regurgitant murmur as a sign distinct from a regurgitant murmur. That the discrimination cannot always be made with positiveness, is to be conceded. A feeble murmur, although denoting regurgitation, may not be transmitted to the left, nor heard on the back. On the other hand, it is not certain that a non-regurgitant murmur is always limited to the præcordia, and never heard on the posterior aspect of the chest. There may be exceptions to the rule, but the rule is not thereby invalidated.

The question will arise, How is an intraventricular non-regurgitant murmur to be explained? Here let it be remembered that a well-established clinical fact is none the less a fact because an explanation is not at hand. Autopsical proof of the correctness of an explanation is, of course, not practicable in the cases in which the murmur has existed and disappeared. Supposition must take the place of demonstration in such cases. This remark applies equally to the explanation generally adopted, to wit, that mitral regurgitation actually takes place, and is due either to a lesion from which recovery is complete, or to a functional incompetence from irregular contraction of the papillary muscles

or other causes. Nothing can be more purely hypothetical than these suppositions. An explanation which refers the production of the murmur to different physical conditions within the ventricle is not more hypothetical, and it is vastly more rational.

A topic connected with the symptoms of functional mitral incompetence claims a passing notice. The frequency of hæmic murmurs at the base of the heart, and especially emanating from the pulmonary artery, in cases of general anæmia or spanæmia, is well known. It has been conjectured that the murmur usually referred to the pulmonary artery is in fact a mitral regurgitant murmur transmitted into the second intercostal space on the left side by the mitral regurgitant current. This supposition has been elaborately advocated by Balfour, and as elaborately controverted in a more recent and able work by Bramwell. It seems hardly to deserve the space given to it by the last-named author, inasmuch as it involves assumptions which are purely gratuitous and irrational. These are, 1st. That the murmur is not heard at the point nearest to the site of the pulmonary artery. This may be true in some, but certainly not in all, instances. It is equally true that an aortic direct murmur due to aortic lesions, and an aortic regurgitant murmur, do not always have their maximum intensity at a point nearest to the seat of their production. 2nd. That functional incompetence of the mitral valve takes place. This is purely hypothetical and improbable. 3rd. That, assuming functional incompetence of the mitral valve, the regurgitant murmur has its maximum of intensity at the base; whereas, when incompetence is the result of lesions, as is well known, the maximum of intensity is at the apex. A conjecture so purely fanciful, without a single fact to support it, calls for no more than a passing notice.

An intraventricular and a regurgitant mitral murmur may be combined. Every auscultator of much experience must have met with a systolic murmur consisting of two parts differing in quality or pitch—one part rough and the other soft, or one part low and the other high pitched. The rational explanation is that there are two murmurs, one produced within the ventricle and the other at the mitral orifice.—*American Journal of Medical Science, Jan. p. 30.*

28.—ON THE MITRAL PRESYSTOLIC MURMUR.

By AUSTIN FLINT, M.D., Belle Vue Hospital, New York.

The mitral presystolic murmur has usually a peculiar quality, and this, taken in connection with the time of its occurrence—beginning after the second and ending with the first sound—renders this murmur of all the cardiac murmurs the most easily recognised when its distinctive characters have been clearly apprehended and verified. It is, however, to be remarked that the

peculiar quality is sometimes wanting, and the recognition must then be based on the presystolic time of its occurrence and its localization at the apex.

What is the explanation of this peculiar quality? The writer has answered this question to his own satisfaction, but the answer has apparently either failed to receive attention from others, or it is not as satisfactory as to himself. That the murmur is produced by vibration of the mitral curtains, caused by the mitral direct current of blood forced by the auricular contraction through a narrow aperture, is shown, *first*, by the character of the murmur. The terms vibratory or blubbering express this character. *Second*, the murmur may be imitated perfectly by the expired breath in two ways. One way is to have the lips in contact and allow them passively to vibrate with the current of air in expiration. The other way is to allow the tongue to vibrate with an expiratory current of air. These imitations illustrate not only the character of the murmur, but the mechanism of its production. *Third*, the murmur may be represented artificially, as follows: Take an india-rubber bag, with very thin walls, of the size of an orange—such an one as is used, when inflated, to make the toy balloon; insert into the opening the efferent tube of a Davidson (Higginson) syringe; make an opening into the opposite end of the bag, of the size and form of a buttonhole; place the bag in a basin of water below the surface; force water through the bag by compressing the bulb of the syringe; and listen with the binaural stethoscope, the pectoral extremity just below the surface of the liquid. Here are precisely the conditions under which this murmur is produced in cases of mitral stenosis.

Clinical observation shows that, as a rule, when this murmur exists with the characteristic quality just referred to, mitral stenosis is produced by adhesion to each other of the mitral curtains, these forming a funnel-shaped space with the so-called buttonhole opening, the curtains not having been made rigid by thickening or calcification. If these conditions be wanting, either the presystolic murmur is not present, or, if present, the vibratory or blubbering character which in most instances is so highly distinctive of it is wanting; the murmur is blowing or bellows-like. It is a clinical fact that a presystolic murmur is not always present in cases of mitral stenosis, and that, when present, it may be a soft, bellows-like murmur. In these instances the conditions for the requisite vibrations of the mitral curtains are absent.

This explanation of the mechanism renders intelligible the disappearance of the murmur at times in an advanced stage of disease of the heart. The murmur requires for its production a certain degree of force in the auricular contractions; the force may be insufficient when from dilatation the muscular power of the auricle is notably weakened. The explanation renders intelligible the

clinical fact that, when at times the murmur has disappeared, it may be made to return by measures to increase the power of the heart's action, such as the administration of alcohol or digitalis.

That the presystolic murmur is due to the auricular contraction, is disputed by some able writers. They attribute the murmur to the ventricular systole, and account for its production by supposing that the murmur is produced after the ventricle begins to contract, and prior to the tension of the auriculo-ventricular valves. The murmur thus, according to this supposition, is intraventricular, and precedes the first sound, for the reason that this sound takes place at the end of the systole, when the auriculo-ventricular valves are made tense. An objection fatal to this supposition is, the presystolic murmur often occupies a longer time than the ventricular systole can possibly occupy. The murmur may be heard during the greater part, and even the whole, of the long pause. It cannot be supposed that the ventricular systole is taking place during all this period. Vivisections show that the systole takes place quickly. It is unnecessary to cite other objections.

The not infrequent occurrence of a mitral presystolic murmur, unaccompanied by a mitral systolic murmur, is a noteworthy fact, as showing that the physical conditions for the former do not necessarily involve mitral incompetence. Under these circumstances it is almost certain that the mitral stenosis is caused by adhesion of the valvular curtains to each other, forming a funnel-shaped cavity, the flexibility of the curtains not being impaired. This fact, therefore, speaks for the explanation which has been given of the presystolic murmur, namely, vibration of the mitral curtains. Another fact having the same significance is the intensity of the mitral valvular sound. This sound is in some cases notably more intense than when the valvular curtains are normal. Every auscultator of experience must have noticed the intensity of the mitral valvular sound at the abrupt termination of the murmur. It is intelligible that the funnel-shaped sac within the ventricle, under the pressure of the blood, should yield a louder sound with the ventricular systole than the mitral curtains in their normal condition. Normally the curtains are floated out and brought into apposition by the filling of the ventricle at the time of the systole. Their range of movement with the systole is less than when they are united to form a cul-de-sac, and, hence, the sound is less intense.

Another noteworthy fact is the long tolerance of the form of mitral stenosis of which the characteristic presystolic murmur is the sign. In several cases under the writer's observation, this lesion has been well tolerated for from ten to fifteen years, the sign having doubtless existed for a greater or less period prior to the cases coming under observation. In a patient now living and free from any of the grave consequences of obstruction of the mitral orifice, a loud blubbery murmur was ascertained to exist by the

writer fifteen years ago. The long tolerance of the lesion, in certain cases, is an important fact to be borne in mind with reference to prognosis. Still another fact to be noted is the existence, not very infrequently, of this lesion when it cannot be traced to an attack of rheumatic fever—that is, in persons who have never had the latter disease. This fact renders it probable that endocarditis occurs oftener than is generally supposed as a complication of other diseases than rheumatism, or as a primary affection.

The author of a late work on diseases of the heart states that a constriction of the auriculo-ventricular opening is always present when a presystolic murmur exists. This statement expresses the prevailing opinion at the present time. That this opinion is erroneous, the writer of this article not only believes, but knows. This strong statement is made for the reason that his knowledge is based on recorded clinical observations during life, and post-mortem examinations in cases in which the murmur existed and the mitral valve was sound.

[In support of this statement three cases of aortic disease are quoted, where, in addition to a regurgitant aortic murmur, a presystolic mitral sound was heard, and the healthy and competent condition of the mitral valve ascertained by post-mortem examinations. The explanation adopted by Dr. Flint of this remarkable occurrence is given in his own words thus: “The explanation involves a point connected with the physiological action of the auricular valves. Experiments show that where the ventricles are filled with a liquid, the valvular curtains are floated away from the ventricular walls, and, approximating to each other, they tend to close the auricular orifice. In fact, as first shown by Baumgarten and Hamernik, a forcible injection of liquid into the left ventricle through the auricular opening will cause a complete closure of this opening by the coaptation of the mitral curtains; so that these authors contend that the mitral closure of the auricular orifices is effected, not by the contraction of the ventricles, but by the forcible current of blood propelled into the ventricles by the auricles. However this may be, that the mitral curtains are floated out and brought into apposition to each other by simply filling the ventricular cavity with a liquid, is a fact sufficiently established and easily verified. Now, in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta, as well downward from the auricle, before the auricular contraction takes place. The distension of the ventricle is such that the mitral curtains are brought into coaptation, and when the auricular contraction takes place, the mitral direct current passing between the curtains thus in contact with each other throws them into vibration, and gives rise to the characteristic blubbering murmur.”]—*American Journal of Med. Sciences*, Jan. 1886, p. 32.

29.—ON THE MITRAL DIASTOLIC MURMUR.

By AUSTIN FLINT, M.D., New York.

The mitral diastolic murmur has not as yet gained general recognition as a distinct cardiac murmur. It is entitled to be so recognised. Within the past year the writer has met with several examples, a fact leading him to suppose that this murmur is not as rare as is supposed. In most of these examples the quality of the murmur has been soft or bellows-like. It has not had the faint musical character mentioned by Balfour, nor could the term *bruit de roulement*, applied to this murmur by Peter, be regarded as appropriate.

As regards its clinical recognition, a murmur which follows the second sound, and ends before the contraction of the auricle, if aortic and pulmonic regurgitation be excluded, may be assumed to be a mitral diastolic murmur. The localization of the murmur is an important diagnostic point. It is heard above the apex and below a horizontal line passing through the nipple. It is probably, with very rare exceptions, followed by a presystolic murmur. It may be distinguished from the latter by a difference in quality as well as in the time of its occurrence. It may, however, have the same character as the presystolic murmur. In some instances a murmur, vibratory or blubbery in character, may begin directly after the second sound of the heart, and continue throughout the long pause, ending with the first sound. In these instances the mitral diastolic and the presystolic murmur exist in combination. This combination also exists if a soft murmur occupies in the same way the long pause of the heart. It is easy to conceive of the mitral diastolic murmur being overlooked, if it be soft and feeble, when associated with a loud presystolic murmur, especially if the former be not sought after. Moreover, a soft mitral diastolic murmur is liable to be regarded as an aortic regurgitant murmur. This error is probably not infrequent.

A mitral diastolic murmur must be produced by the current of blood from the auricle into the ventricle prior to the auricular contraction. It is intelligible that gravitation when the body is upright, and the *vis a tergo* incident to a distended auricle, give to this current a certain degree of force. If, as some contend, to this force were to be added aspiration caused by an active dilatation of the ventricle, it is surprising that a mitral diastolic murmur is not of frequent occurrence. Here, however, as always in the study of physical signs, clinical observation should be the point of departure. The mitral diastolic murmur claims more attention, clinically, than it has hitherto received. There are points to be studied by observation, such as the frequency of the murmur, its association with other murmurs, and the conditions under which it is observed. A full explanation of the mechanism of its production, although interesting and important, must be secondary to clinical fact.—*American Journal of Medical Sciences*, Jan. 1886, p. 38.

30.—ON AIR-EMBOLISM.

By N. SENN, M.D., Milwaukee, Wis., U.S.A.

[The following is a *resumé* of an exhaustive paper on this subject by Dr. Senn, in the August and September numbers of the *Annals of Surgery*.]

1. The presence of adventitious air in the vascular system during life gives rise to air-embolism.

2. Each air embolus constitutes a mechanical source of partial or complete obstruction to the flow of blood in the vessel in which it is located.

3. Aspiration during the inspiratory movements of the chest is the direct or exciting cause of ingress of air into a wounded vein or sinus.

4. Elevation of the head is the sole predisposing cause of the entrance of air in wounds of the superior longitudinal sinus.

5. In veins the predisposing causes consist in—(a) Elevation of the part wounded; (b) Pathological or anatomical conditions which prevent collapse of the vein when it is wounded.

6. Insufflation of a fatal quantity of air into a vein produces death by—(a) Mechanical over-distension of the right ventricle of the heart and paralysis in the diastole; (b) Asphyxia from obstruction to the pulmonary circulation consequent upon embolism of the pulmonary artery.

7. Insufflation of the same quantity of air into arteries is less dangerous than when introduced into veins. When death is produced in this manner it results from—(a) Acute cerebral ischæmia; (b) Secondary venous air-embolism; (c) Intense collateral engorgement of the vessels of the brain and spinal cord, the manner of death being determined by the amount of air injected, and the direction in which the injection is thrown, as well as the time which has elapsed between the operation and the fatal termination.

8. Air injected into arteries is readily forced through the systemic capillaries into the venous circulation and right side of the heart by the powerful contractions of the left ventricle.

9. Air-embolism of the pulmonary artery is relieved in a comparatively short time, provided the contractions of the right ventricle continue unimpaired for a sufficient length of time to force the air through the pulmonary capillaries into the general circulation.

10. The prophylactic treatment consists in proximal or double compression, or ligation of the vein which is endangered by the operation.

11. The indirect treatment has for its objects—(a) Prevention of admission of air; (b) Administration by inhalation of hypodermatic injection of cardiac stimulants; (c) Venesection.

12. The direct or operative treatment by—(a) Puncture and aspiration of the right ventricle ; (b) Catheterisation and aspiration of right auricle, which is proposed with a view to obviate the direct cause of death by the removal of air and spumous blood, thus relieving directly the over-distension of the right ventricle, and, at the same time, to guard against a fatal embolism of the pulmonary artery.

13. The results obtained by experiments on animals warrant the adoption of the operative treatment of air-embolism in practice, as a last resort, in all cases where the direct treatment has proved inadequate to meet the urgent indications.—*Annals of Surgery*, Sept. 1885, p. 212.

31.—THE TREATMENT OF HEART-DISEASE IN CHILDREN.

By W. B. CHEADLE, M.D., F.R.C.P., Senior Physician to the Hospital for Sick Children, Great Ormond-street, London.

Those cases of heart-disease which arise in inflammatory changes are capable of being largely influenced for good or evil in the early stage of their development. It would appear as if in childhood recovery was far more complete, compensation more perfect and stable, than in later life. Some cases, where the injury is not great, lose all signs of heart disease. More often the physical signs continue into adult life, with enjoyment of apparent health, the growing heart adapting its machinery to the altered conditions with a nicer exactitude. I could quote many cases in illustration of this efficient compensation in rheumatic valvular affections contracted in childhood.

But then, on the other hand, the results are sometimes as extreme the other way. Downward progress is excessively rapid. Hypertrophy and dilatation proceed at a far greater rate in the soft growing muscle than in the stiffer and fixed fibre of adults. If in some cases we happily see the murmur fade away, in others we see it grow gradually in intensity, or dilatation rapidly develop.

If *slight* damage is more easily repaired in a child's heart than in that of an adult, *serious* damage more easily sets in motion after changes of dilatation and hypertrophy, which progress more rapidly than in the adult. Its development is more readily influenced for good or evil. From this we see how important is the wise management of these cases in their early stage. Of the treatment by drugs I shall say but little ; it must be on the same lines as that found most useful in similar conditions in adults. Salicylate of soda, alkalies, digitalis, iron, and nutritive diet have all their place at the proper time. I will give one caution, however, as to the use of bleeding. Leeches to the præcordia undoubtedly do good in the hyperæmic stage of pericarditis. But children bear

loss of blood badly, and I have seen one case at least in which thrombosis of the right cavities of the heart resulted from the enfeebled action following a considerable loss of blood after careless leeching, when the leech-bites had been allowed to bleed excessively. Embolic disseminated pneumonias followed, which, with the cardiac embarrassment, proved fatal. The most vital of all precautions is the careful avoidance of anything which will cause strain upon cardiac valves or muscle. If this be neglected, serious dilatation will follow. Not only severe but even active physical exertion of every kind must be absolutely prohibited; out-door games and athletic exercises in every form—no football, no cricket, no rowing, no dancing. At the very outset a still more rigid abstention must be observed; absolute rest on the bed and sofa for weeks or months, until the compensatory changes have become established, and the adjustment of the machinery to the new conditions complete and stable. In every case, then, of rheumatism, or chorea, or scarlatina, where heart murmur arises, whenever a sign of valvular defect is detected, bear this in mind, and enforce rigid rules of rest, so that the damaged heart may have full chance under favourable conditions for repair and readjustment. Too often the cardiac changes are well advanced before the lesion is discovered, and irretrievable damage has been done, which might have been avoided had the fault been recognised at its first inception. The cause of this frequent oversight lies in the extremely insidious and unobtrusive character of the signs and symptoms which mark its onset. This is especially true of the rheumatic cases. I have shown you, by many striking examples, how a slight swelling and stiffness and tenderness of joints or of tendons, unnoticed or unregarded at the time, may mark the development of endocarditis, leading to the gravest affection of the valves. Nay, even a slight febrile attack may be the only indication of it. And then the physical signs and symptoms of incipient endocarditis are themselves almost equally small and difficult to recognise in many cases. I have constantly watched in children the slow advance of what was the slightest, softest bruit into a loud murmur, with all the sequent changes of dilatation. So that I would enforce as strongly as I may—what has often been urged before, but cannot be urged too often—the absolute obligation which rests upon the medical practitioner to make most minute and careful examination of the heart by the stethoscope in every case where there is possibility of cardiac inflammation arising. It is imperative in all cases of slight arthritis, or joint or tendon pain and stiffness, in all cases of chorea, in purpuric erythema, in tonsillitis, in scarlatina, in septicæmia, in nephritis, and especially in every instance of unexplained pyrexia in children, however slight, however transient, that this golden rule of careful, constant auscultation of the heart should never be neglected.—*Lancet*, Oct. 31, 1885, p. 795.

32.—ON STROPHANTHUS (A MEMBER OF THE DIGITALIS GROUP) IN HEART DISEASE.

By THOMAS R. FRASER, M.D., F.R.S., Prof. of Materia Medica and of Clinical Medicine in the University of Edinburgh.

[At the last meeting of the British Medical Association, Dr. Fraser opened a discussion upon the Action and Uses of Digitalis and its Substitutes. After reference to the well known physiological actions and therapeutic uses of the group as exemplified in digitalis, Dr. Fraser goes on to speak more in detail of *Strophanthus* (*hispidus*?), a plant first brought under his notice in connection with its use in Africa as an arrow-poison. Some of the results of an examination of its chemical composition and pharmacological action were published by Dr. Fraser in the Proceedings of the Royal Society of Edinburgh in 1870. Several papers, mostly by continental authors, have since appeared. In a paper on heart-poisons, published in 1865, by Drs. Hilton Fagge and Stevenson, passing reference is made to the drug. The plant belongs to the order *Apocynaceæ*. Dr. Fraser writes as follows.]

The pharmacological action of strophanthus appears to be an extremely simple one. It may, I believe, be described in the few words that it is a muscle-poison. However introduced into the body, it increases the contractile power of all striped muscles, and renders their contractions more complete and prolonged. In lethal doses, it destroys, besides, the capacity of the muscles to assume the normal state of partial flaccidity, and causes the rigidity of contraction to become permanent, and to pass into the rigor of death. As a result of the action on muscle, the heart is early and powerfully affected. It receives a larger quantity in a given time than any of the other muscles of the body, and therefore it probably is that strophanthus affects its action more distinctly and powerfully than the action of the other striped muscles. Indeed, by regulating the dose, a very distinct pharmacological influence may be produced upon the heart, while the other muscles remain apparently quite unaffected.

The changes which I have found to occur in the heart's action are the ordinary changes that have been frequently described in the case of digitalis, and of other members of this group. The systole of the heart is increased, and its contractions are slowed, by small doses; it is paralysed in a condition of rigid systolic contraction by large doses. This action is produced if the influence of the cerebro-spinal nervous system be altogether removed; and, with lethal doses, the heart, like the other muscles of the body, passes at once from the condition of pharmacological systole into the rigor of death, with an acid reaction of its muscular fibre. Curiously enough, another rhythmically contracting muscle, the lymph-heart of the frog, is but slightly affected by the action of strophanthus.

The action upon the heart, which I have thus briefly described, is accompanied by a rise in blood-pressure, which appears to be directly produced by it, and, in certain conditions, by an increased secretion of urine, and a reduction of temperature. As these several effects constitute the foundations of the use of digitalis in disease, I determined, in the next place, to administer strophanthus with the view of discovering whether it would serve as a substitute for digitalis. This has now been done in a large number of cases, a few of which I shall describe briefly. (One only of the five cases given in Dr. Fraser's paper is reproduced here. It may be taken as typical of the series. All the patients upon whom the observations were made were the subjects of mitral disease, with marked symptoms.)

In most of the cases I employed a tincture made by percolation with rectified spirit, in which $2\frac{1}{2}$ oz. of the powdered seeds yielded two pints of tincture (the dose of this tincture is from 2 to 4 minims); but, occasionally, I have substituted for this tincture one in which the fat, so abundantly present in strophanthus, had previously been removed with ether. I have also used watery and alcoholic solutions of strophanthin; and I have, in a few instances, injected this active principle, dissolved in water, under the skin. Subcutaneous injection was, however, sometimes accompanied with the inconvenience of irritation having been produced at the seat of injection. [See also 'Digitalis Group' in *Synopsis*.]

Case 1.—Wm. R., aged 43, came under treatment in January, 1881, suffering from shortness of breath, cough, and swelling of the feet. His face was extremely flushed; the difficulty of breathing was so great that he could not lie down in bed; and he was obviously in a condition of great distress. Examination showed that the liver and spleen were enlarged, that the lungs were œdematous, and that the circulation was much disordered. In regard to the last, violent palpitation was present, the whole præcordium was in a state of constant motion, and there were strong and rapid epigastric pulsations. The heart was considerably enlarged, and a soft, indistinct, mitral systolic *bruit* was present. The radial pulse was almost imperceptible; it was very small and irregular; and, while only forty-eight beats could be counted at the wrist, the cardiac systoles seemed to be 160 in the minute. After the patient had been under general treatment for two days, I began the administration of tincture of strophanthus on the evening of January 23rd, giving in the first place 15 minims, and then 20 minims, of the tincture twice daily, and afterwards 10 minims, 8 minims, and 5 minims twice daily. The condition of the patient quickly improved; the breathing became less rapid; the radial pulse became stronger and more regular, and it soon coincided with the heart's beats. The pulse was, indeed, reduced on January 29th to forty-six beats in the minute. The œdema of

the lower extremities, and of the lungs, had disappeared on the 29th; the patient could then lie down in bed, he could take his food with relish, and he expressed great satisfaction with the condition of comfort in which he found himself. The remarkable amelioration in the state of the circulation, which had been produced, is graphically represented in the subjoined pulse-tracings.



Fig. 1.—William R. Before strophanthus. Radial pulse uncountable; ventricular contractions by auscultation, 160 per minute; respirations, 36 per minute.



Fig. 2.—William R. Forty minutes after strophanthus. Ventricular contractions 172 per minute; respirations, 34 per minute.

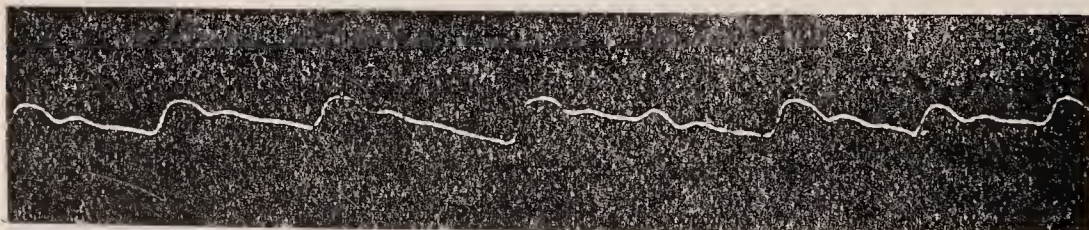


Fig. 3.—William R. Second day of strophanthus. Ventricular contractions, 96 per minute; respirations, 24 per minute.

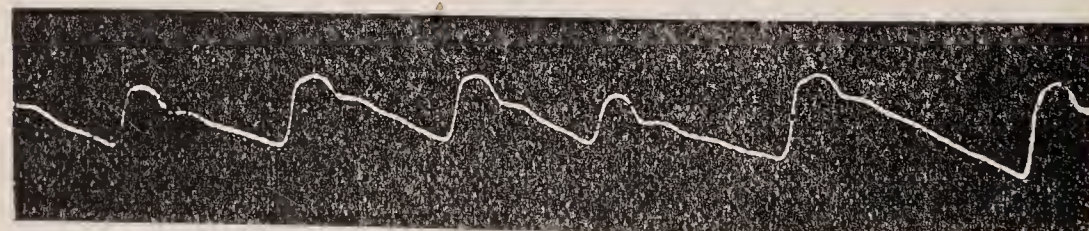


Fig. 4.—William R. Third day of strophanthus. Radial pulse, 88 per minute; respirations, 24 per minute.

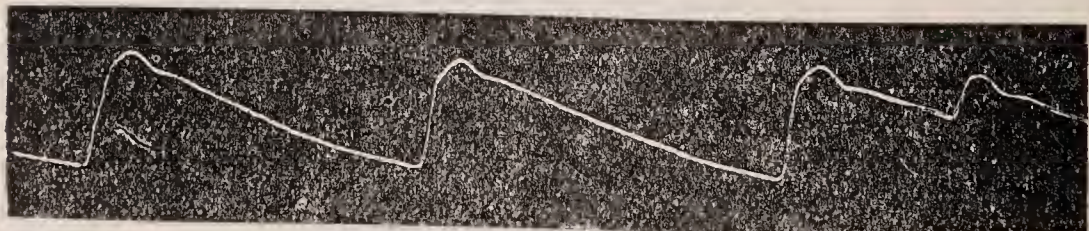


Fig. 5.—William R. Fifth day of strophanthus. Radial pulse, 48 per minute, respirations, 28 per minute.

Accompanying this great improvement in condition of the circulation, there was a marked effect in the renal function. The quantity of urine passed each day from January 22nd to February 28th, was as follows:—

<i>Before Strophanthus</i>					Febry.	9	...	...	...	56 ounces
January	22	...	...	...	13 ounces	10	...	...	...	81 "
"	23	...	...	...	27 "	11	...	...	...	60 "
<i>Strophanthus Begun.</i>						12	...	...	...	44 "
January	24	...	...	...	22 ounces	13	...	...	...	60 "
"	25	...	...	...	42 "	14	...	...	...	55 "
"	26	...	...	...	96 "	15	...	...	...	72 "
"	27	...	...	...	152 "	16	...	...	...	52 "
"	28	...	...	...	109 "	17	...	...	...	66 "
"	29	...	...	...	67 "	18	...	...	...	59 "
"	30	...	...	...	96 "	19	...	...	...	44 "
"	31	...	...	...	102 "	20	...	...	...	56 "
Febry.	1	...	...	...	78 "	21	...	...	...	51 "
"	2	...	...	...	72 "	22	...	...	...	72 "
"	3	...	...	...	65 "	23	...	...	...	58 "
"	4	...	...	...	74 "	24	...	...	...	68 "
"	5	...	...	...	70 "	25	...	...	...	68 "
"	6	...	...	...	69 "	26	...	...	...	74 "
"	7	...	...	...	63 "	27	...	...	...	65 "
"	8	...	...	...	64 "	28	...	...	...	72 "

During the whole of this time, and for some weeks afterwards, strophanthus was administered. The patient was ultimately restored to a condition of comparatively good health.—*British Medical Journal*, Nov. 14, 1885, p. 905.

DISEASES OF THE ORGANS OF RESPIRATION.

33.—ON THE THEORY OF BRONCHIAL ASTHMA.

By Sir ANDREW CLARK, F.R.S., Physician to the London Hospital.

[In an important article, dealing chiefly with the pathogenetic aspect of the subject, Sir Andrew Clark adduces the arguments in favour of the pathological identity of Spasmodic Asthma and Hay Fever. A vivid description of an attack of hay fever is given, and its likeness in the march of symptoms to one of spasmodic asthma pointed out. Both diseases are regarded as belonging to the ever-increasing family of the "neuroses," and classed with urticaria as neurotic disturbances of the vaso-motor apparatus. After an almost categorical refutation of the arguments of Williams, Gairdner, and Bergson, in favour of the "bronchial spasm" theory, the author writes as follows.]

If we turn to the local phenomena of hay fever, we may find in them the grounds of an adequate expression of the phenomena of the asthmatic paroxysm and of a true theory of its nature. Let us remember that the various disorders of sensation which begin the paroxysm of hay asthma are followed by general or local swellings

of the nasal mucous membrane; that these swellings rise and subside with great rapidity; that they are capable of completely occluding the nasal passages; that the air traversing them, when partially open, produces shifting stridulous sounds; that, when secretion occurs, it is either watery, acrid, and abundant, or scanty and mucoid or gelatinous; and that, toward the close of the paroxysms, the discharge becomes sometimes purulent and stained with blood. Let us remember, furthermore, that the end of an attack of hay fever is occasionally the beginning of an attack of bronchial asthma; that now and then the two affections alternate; and that, although rarely, asthma, hay fever, and urticarial rashes are exchangeable troubles in the history of the patient and his family.

If now, making due allowance for anatomical differences, we suppose that the structural changes occurring in the nasal mucous membrane during an attack of hay fever were to occur also in various parts of the bronchial mucous membrane, would their presence there, going and coming, afford a complete and adequate explanation of the facts observed during a paroxysm of bronchial asthma? I am fully impressed by the conviction that they would; and that, furthermore, by the presence of those bronchial swellings and their immediate effects, we should become able to solve difficulties which, under the reign of the spasm theory, are regarded as insoluble.

It would certainly be interesting, and might be instructive, to set forth the grounds of this conviction through a critical examination of every separate sign and symptom of the asthmatic paroxysm. But I fear that neither the practical importance of the subject, nor the time at the disposal of my readers, would justify such a course. Happily, however, this end may be otherwise achieved, and at the cost of but a small sacrifice of material evidence.

In the following series of propositions I shall endeavour to set forth as concisely as possible what I regard as the teaching of a study of hay fever concerning the pathology of bronchial asthma.

1. Asthma is a neuro-vascular trophic disease, and has its roots in a special vulnerability of the respiratory mucous membrane, of the respiratory nerve centres, and of certain portions of the sympathetic.

2. The irritation exciting the nerve discharges which bring about the asthmatic paroxysm may arise in the blood, in any one of the mucous tracts, but more particularly the respiratory one, in certain cutaneous inflammations, and in the central nervous system itself.

3. The paroxysm begins by a more or less diffused hyperæmic swelling of the bronchial mucous membrane, and is continued by the development at various parts thereon of circumscribed congestive swellings, which come and go with greater or less

rapidity, and resemble, in many particulars, the swellings of the skin in nettlerash.

4. At their first appearance these swellings became coated with a viscid mucus, hinder the entrance and exit of air, and by their vibration produce for the most part the drier râles characteristic of a certain state of the asthmatic paroxysm. Toward the close of an attack, the swellings after free secretion subside, the dyspnœa is relieved, and moist take the place of dry râles.

5. The secretion from the swellings being sometimes acrid, and even corrosive, may excite some contraction of the bronchial muscles; but such contraction cannot become, either by its nature or its amount, the chief factor in the evolution of the asthmatic paroxysm.

6. The hyperæmia and circumscribed swellings of the bronchial mucous membrane hindering the free entrance of air, and thereby the full aëration of the blood, both the peripheral nerves and the respiratory centres are irritated, and exaggerated discharges of respiratory impulses are sent to the inspiratory muscles, which are thrown thereby into violent and sometimes even tetanic contractions.

7. These violent inspiratory efforts increasing the Hallerian extension force of the thoracic walls, straighten the bronchial tubes, and, notwithstanding the tendency of inspiratory forces to increase the size of the swellings, make the entrance of air into the lungs far easier than its exit.

8. When the inspiratory efforts cease, and the expiratory recoil begins and is continued by the muscles of forced expiration, the smaller bronchi, more especially those containing mucous wheals, are compressed, and all the passages are relaxed and lose their straight direction. Thus the egress of air is greatly hindered, and the act of expiration so much prolonged that it is sometimes suddenly interrupted and prematurely closed by the violent inspiratory efforts originated in the respiratory nerve centres through the circulation of imperfect oxidated and decarbonised blood. In this way inspiration gains upon the expiration; the alveoli are extended with air; the diaphragm is depressed; the chest, in all its dimensions, is dilated; breathing becomes more and more difficult; death seems imminent; and the paroxysm is at its height.

9. After a time, varying greatly in duration, the attack begins to subside, and, partly by secretion from the bronchial mucosa, partly from the exhaustion of the excitability of the respiratory and vasomotor centres, respiration becomes easy, lividity and swelling of the face disappear, restless anxiety is displaced by growing calm, and the attack is brought to an end.

The views here set forth resemble, in some particulars, the view published by Weber in 1872. They are, nevertheless, the views which I have taught at the London Hospital for the last twenty

years, and which were embodied in the opening address of the discussion upon asthma at the Cambridge meeting of the British Medical Association.

It cannot justly be held that the truth or error of a theory is to be determined solely by its fertility or its barrenness; but for us, who are practitioners of medicine, in its capacity for being turned into a working hypothesis, and the extent to which it may be made applicable to practical work, are not only a main ground of its acceptance, but some measure of its worth. Whether the theory of hay fever and of bronchial asthma herein advanced will bear the successful application of this criterion of its value, cannot now be determined. But the question is ripe for discussion, and on another occasion we may submit it to critical examination.—*American Journal of Medical Sciences*, Jan. 1886, p. 110.

34.—ON THE NEUROTIC TREATMENT OF CATARRH.

By DAVID B. LEES, M.D., F.R.C.P., Physician for Out-patients, St. Mary's Hospital, London.

If it be true that catarrh is a reflex neurosis, it is clear that a treatment which is essentially diaphoretic must miss the mark. It is to neurotic remedies that we must look for alleviation and cure. The indications for treatment are three: we need to soothe the reflex disturbance of the central nervous system, to quiet the local congestion and hyperæsthesia of the nasal mucous membrane, and to arrest the flux, if it have already commenced.

The first indication may be to some extent met by the administration of opium. It is to the sedative influence of this drug on the nervous system, rather than to any diaphoretic action which may result, that Dover's powder owes its reputation in the treatment of catarrh. Laudanum sometimes is distinctly successful in arresting a cold. But the other effects of opium make it not altogether a desirable remedy. Chloral hydrate is free from these objectionable effects; but both opium and chloral are dangerous drugs, and they cannot be pushed with safety. Bromide of potassium is, however, free from these objections; it is by far the safest nervine sedative which we possess. Professor Wood says: "No case of acute poisoning in man with the bromide of potassium has been reported, and I have never seen a single dose of it produce any obvious effect." A case is recorded in which an epileptic idiot took at a single dose no less than two ounces and a half of this salt. No drowsiness was produced, and the only apparent effect was that the fits, which until then had been very frequent, ceased immediately, and had not returned even ten weeks later. The distinctive physiological action of bromide is to depress the reflex activity of the central nervous system—precisely the action required in the treatment of catarrh; and its safety makes it possible

to give the drug in such doses as shall produce a distinct physiological effect.

The second indication is to reduce the local congestion and hyperæsthesia of the nasal mucous membrane. Relief may be given in this direction by simply closing the nostrils, or impeding the access of cold air by inserting a plug of cotton-wool. A correspondent of one of the medical journals is enthusiastic over the magical effects of a camomile flower inserted into the nostril! Distinguished authorities in neurology have not disdained to turn their attention to this point. Dr. Ross tells of the relief he has himself experienced by painting the nasal mucous membrane with simple vaseline, and Dr. Ferrier has suggested the sniffing of a powder by which the locally sedative effects of morphine and bismuth are produced. The former method is simply protective, like the cotton-wool. Ferrier's powder is certainly of some curative value, but its application is extremely unpleasant in the results to clothing, when the moistened powder falls from the nose, a chalky cream. The indication can now be much more satisfactorily and scientifically met by the use of cocaine. This drug both causes local anæsthesia and diminishes local congestion; hence, it affords exactly what we require. I have found that the occasional painting of the mucous membrane, especially over the inferior turbinated bone, with a 4 per cent. solution of hydrochlorate of cocaine by means of a camel's hair brush gives instant relief, and on one occasion, at all events, this measure sufficed completely to arrest a cold without the aid of any other remedy whatever.

The third indication is to arrest the flux if it have already commenced. Here again we are fortunate enough to possess a remedy which exactly fulfils the indication. The first obvious physiological action of belladonna is to produce dryness of the throat, due to suppression of the secretions of the salivary and mucous glands. This is exactly what we require in the treatment of catarrh, and several observers have pointed out the advantage of using this drug, but there does not seem to be a general recognition of the fact. And belladonna is a comparatively safe drug; not that it can be used with the freedom of bromide, but that it gives distinct indications long before the development of poisonous symptoms. The dryness of the throat is almost invariably the first effect, but dimness of near vision, dilatation of pupil, and flushing of the face will be observed before any cerebral excitement will occur; and the poisonous properties of belladonna are much less dangerous than are those of opium, which depresses the respiratory centre.

My plan of treatment for the arrest of catarrh is as follows: I keep a strong solution of bromide (1 in 3) and a bottle of tincture of belladonna (B. P.). When I am conscious of having taken cold, I take two to three drachms of the bromide solution in a

small glass of water—that is to say, forty to sixty grains of bromide. I repeat this dose in six hours, and, if necessary, take a third dose at a similar interval. Meanwhile, as soon as a flux commences, I take twenty drops (equivalent to fifteen minims) of the tincture of belladonna in a little water every hour or two until the throat feels somewhat dry. The painting of the nasal mucous membrane with cocaine solution gives great relief, and powerfully contributes to the cure if the catarrh be severe. Since I hit upon this plan I have never failed rapidly to arrest my own catarrhs, nor have I failed in any instance in which I have myself been able to superintend the administration of the remedies.

The following case may serve to illustrate the good which may be effected even when it is not desirable to push the remedies so decidedly. I was telegraphed for by the lady superintendent of the Highgate convalescent branch of the Hospital for Sick Children, of which I have the medical charge, to see a child who was dangerously ill. I found it to be a very rickety girl, aged four, with a highly-deformed chest. A stream of catarrhal secretion was flowing from both nostrils, dyspnoea was marked, and the temperature was 101° . On examination of the chest, I found good resonance everywhere, but an abundance of catarrhal râles. I ordered that the chest should be rubbed with turpentine liniment, and that the child should take eight grains of bromide and ten minims of tincture of belladonna every four hours. Forty-six hours later I saw this little girl again, and the note I made was this: “No nasal catarrh; no râles in chest; temperature normal; breathing easy; child seems quite well.” Since my previous visit she had been sick once, which had no doubt aided in clearing the bronchial tubes, but the complete arrest of secretion was very remarkable. The great danger of acute bronchitis in rickety children with deformed chests being well-known, it is not improbable that in this particular instance a life was really saved by the adoption of a neurotic treatment of catarrh.—*Lancet*, Feb. 27, 1886, p. 393.

35.—ON THE TREATMENT OF PNEUMONIA.

By STEWART LOCKIE, M.D., Physician to Cumberland Infirmary.

With regard to the treatment of the disease, I am opposed to all lowering measures. It may be that cases now and then occur in which excessive dyspnoea, with the right side of the heart engorged, may call for a moderate blood-letting; but I own I have never seen a case in which I have been tempted to do this. In my view pneumonia should be treated much as we do a fever. The patient should be placed in a pure atmosphere with an equable temperature, and supplied with a moderate amount of easily assimilated nourishment,—not too much, lest we overtax the already overburdened kidneys, which are probably the main agents in eliminat-

ing the poison from the system. For the relief of pain in the side, moderate doses of opium, in the form of Dover's powder, or hypodermic injections of morphia, are useful. A small amount of albumen in the urine does not contraindicate the employment of these, provided we have no reason to think that organic disease of the kidneys was previously present; if there is reason to think this, opiates should if possible be avoided altogether.

I am in the habit of surrounding the side with hot poultices, and usually from the beginning have given frequent moderate doses of carbonate of ammonia,—the latter at first, I own, somewhat empirically; later it may be useful in supporting a failing heart. Where the pyrexia exceeds a moderate amount, say 103° , I have great faith in the use of quinine, and give it in commencing doses of 10 grains at night and 5 in the morning; larger doses may be given if the smaller fail in reducing the temperature. In administering quinine in large doses by the mouth, it is important to give it after food, and if necessary to divide the dose, administering the divided doses at intervals of twenty minutes or half-an-hour. If the stomach does not bear quinine well, it may be given per rectum or hypodermically. I have not, however, had much experience in these methods of administering the drug: in one case in which I employed the hypodermic method there was no effect produced on the temperature, possibly because the dose was too small.

I have occasionally seen such good effects in pneumonia from quinine administered for the pyrexia, that I am inclined to agree with Dr. Burney Yeo in thinking that we do not give it often enough, and should be inclined in future cases to give a trial to its systematic administration from the first.

With regard to the use of cold applications in pneumonia, I have no experience; others, I am aware, have found them useful. Excessive pyrexia calls also for the administration of alcohol in moderate amount, and this is also indicated by any signs of failing circulation, especially a feeble first cardiac sound. Here digitalis may also find a place.—*Edinburgh Medical Journal*, Nov. 1885, p. 421.

36.—ON INTRA-PULMONARY INJECTIONS.

By R. SHINGLETON SMITH, M.D., F.R.C.P., Physician to the Bristol Royal Infirmary.

Treatment by injection into the lung-tissue appears to be an easily performed, safe, and theoretically useful method by which local developments of tubercle may be reached by local treatment, and so the risk of toxic effects of iodoform, when introduced into the blood in quantity, may be avoided. It remains to be proved whether actual experience will justify the expectations which theoretical considerations afford.

Since my attention was first directed to the subject, I have met with only five cases in which I have thought it necessary to carry out the practice of injection into the lung of an iodoform-solution. The results have not been great; but, such as they are, I now report them.

The first case was one of gangrene of the lung, occurring in a man, aged 44, who had suffered from exposure, want of food, and intemperate habits. The patient was very prostrate, with marked hectic, and profuse foetid expectoration, with evidences of consolidation and excavation in the lower lobe of the left lung. As anti-septic inhalations, and the administration of iodoform in pill, two grains every four hours, failed to diminish the excessive foetor of the breath and the sputum, it was thought that this was a case in which local treatment by iodoform-injection was more than justifiable. Accordingly, a solution of iodoform in olive-oil was injected into the substance of the lung in the centre of the area of dulness at the left base; fifteen minims, containing one grain and a half of iodoform, were injected with the ordinary hypodermic syringe. The injection had no immediate effect on the patient, it did not give rise to cough, and there was no evidence of pain or any other discomfort. A similar injection was repeated daily for four successive days; no cough, no hæmoptysis, no pain, were observed as a result of the injections, but on one occasion the patient stated that he noticed the taste of the iodoform in his mouth for some hours. Afterwards an ethereal solution of two grains in ten minims was used, instead of the oily solution; slight cough ensued immediately after the first use of the ethereal fluid, but, on subsequent occasions, the patient made no complaint, and did not appear to have any discomfort. On one occasion, a few streaks of blood were expectorated. For thirteen successive days, the ethereal solution was injected into various parts of the left lower lobe, and with apparent benefit; the temperature fell to normal, expectoration diminished in quantity to about one-half, and was less offensive, and there was less cough. The improvement was not long maintained; in consequence of increasing weakness, the injections were discontinued, and on the second day after, it was observed that the foetor of the breath had much increased, the dyspnoea and prostration increased, and death took place four weeks after his first admission to hospital. After death, a gangrenous cavity, with much surrounding grey hepatisation, was found in the left lower lobe; the cavity did not contain either fluid or slough, and no traces of the injected iodoform could be seen either within or around it.

The next case was one of chronic pneumonia. William S. D., aged 40, of good family history, but of intemperate habits, came under observation in December, 1884, and gave an account of failing health since the previous January. There had been two attacks of blood spitting, and profuse expectoration, amounting to half a

pint or more, of pure pus daily, which did not contain tubercle-bacilli or lung tissue. There was flattening at the right apex, and contraction at the right base; the left supraspinous fossa was dull on percussion, and there was coarse bubbling crepitation at both bases. Liver-dulness was normal. There was no albumen. The pulse was 96, small and weak. On January 23rd, 1885, a large patch of dulness, and cavernous sounds, were found at the base of the right lung; there was also coarse crepitation over the left lower lobe. Sputum amounted to one pint daily, pure pus, with no tubercle-bacilli. The cavity in the right lower lobe was aspirated by Mr. Greig Smith, and on January 25th a drainage-tube was introduced, but without giving exit to more than a few drops of pus, although air passed in and out freely. The tube was removed after four days, and the wound closed at once.

February 4th. An ethereal solution of iodoform (two grains in ten minims) was injected into the position of the cavity in the base of the right lung; the injection immediately set up violent coughing, and the patient tasted the ether, but the sputum did not become blood-tinged.

February 19th. Two grains of iodoform in ten minims of ether had been injected on five occasions in fifteen days. The taste of the ether had been mentioned, but little cough was usually excited; on two occasions there had been momentary faintness immediately after the injection. The sputum had diminished to half a pint, and the injections had given rise to no toxic symptoms. The patient felt better, and went away to the seaside; the injections were accordingly discontinued.

They did not, however, effect any permanent improvement; the patient was of opinion that they diminished the expectoration, but this was only for a time; the process of disintegration of lung-texture steadily progressed, and ultimately involved nearly the whole of the right lower lobe; at the same time the condensation in the left lower lobe steadily progressed, and ultimately there were evidences of cavities on both sides, cavernous sounds and coarse gurgling, with pectoriloquy, being audible from below the spine of the scapula on the right side, and the angle of the scapula on the left side, downwards to the base of the lung. The sputum was examined on numerous occasions, but neither tubercle-bacilli nor shreds of lung-tissue could be discovered.

The patient died in June, whilst away from home, and I did not learn the details of his later history.

The third case was one of chronic tubercular pleuritis in a woman, aged 22, with a history of three months' cough, wasting, and vomiting. There was much dulness at the right base, from the fifth dorsal vertebra downwards, also at the right supraspinous and and infraclavicular regions, and the sputum was found to be crowded with tubercle-bacilli. Nine injections of ether-solution,

one grain in five minims on the first day, two grains in ten minims subsequently, were injected into the dull area at the base, on nine successive days. The injections gave rise to no pain or cough, and there was no hæmoptysis; on one occasion, the patient remarked that she could smell something unusual immediately after the injection.

There was steady gain in weight, from 114 pounds to 140, in two months; the temperature became normal; cough and expectoration ceased; the dulness of the right lung had much diminished, and the patient considered herself to be quite well.

The fourth case was one of advanced phthisis, in a woman, aged 25, with a tuberculous history, and symptoms of twelve months' duration. On admission, there was considerable anæmia, œdema of legs, and albuminuria to the amount of one-fourth. Hepatic and splenic dulness were in excess. There was much dulness and loose crepitation at the left apex, both front and back. Temperature was sub-normal. There was little expectoration, but sufficient to show the presence of tubercle-bacilli. Injections were made into the left upper lobe, at the infraclavicular and superior axillary regions, on six occasions, in nine days; two grains of iodoform in ten minims of ether were introduced on each occasion, and did not give rise to cough, nor did the patient taste the ether; there was no hæmoptysis, but there was complaint of pain round the left chest after the later injections. There was no change in the physical signs, and the patient's weight remained stationary. She did not think it necessary to remain longer under treatment.

The fifth case was one of chronic phthisis, which had been under treatment for eighteen months as an out-patient, from December, 1883, to July, 1885, and had taken iodoform in pill, or dissolved in cod-liver oil, during nearly the whole of this period; the weight had increased from 8 st. 2 lbs. in December, 1883, to 8 st. 9 lbs. in September, 1884; after which time, it remained stationary till May, 1885, when he began to lose weight, partly in consequence of a sore-throat, which gave rise to some dysphonia, but which did not cause any laryngeal ulceration. Five injections were made, from July 12th to the 22nd; the fluid was injected into the consolidated upper lobe of the left lung, at the supraclavicular, infraclavicular, and superior axillary regions. The first injection of ten minims of the ethereal solution gave rise to cough, with momentary faintness and pallor; the following injections were limited to five minims, but some pain and a localised pleuritic friction were observed after the third. The fifth was followed by neuralgic pain in the shoulder and up the neck. The temperature continued to be subnormal, and the weight stationary.

In all, the injections have been given forty-two times in five cases. The ethereal solution of iodoform has been used excepting in the first four injections, when the drug was dissolved in olive-

oil; the ether readily dissolves one grain in five minims, but will not take up more than this; accordingly, the quantity of iodoform capable of being injected is limited by the anæsthetic effect of the ether. I have been unwilling to use any other substance for injection; the bichloride of mercury, although a far more powerful germicide, is so irritating when injected subcutaneously, that its use is not likely to be devoid of danger if injected into the lung-texture.—*British Medical Journal*, Oct. 31, 1885, p. 817.

37.—RAYNAUD'S DISEASE FOLLOWING DIPHTHERIA.

Under the care of G. E. HYDE, Surgeon to the Worcester Infirmary.
Case reported by ALLMAN POWELL, M.B., House-Surgeon.

C. P., aged 48, was admitted on July 14th, 1884. He gave the following history of his case. He served in the Royal Horse Artillery as rough rider for twenty-two years, and subsequently as drill-instructor to police for six years. During all this time his health had been excellent. He had never had any illness of more than a day's duration until about eight months before admission, when he had two or three severe "colds," contracted from wet feet when on night-duty. He had not been abroad, had always lived well, his habits had been regular, and he had not suffered from syphilis, gout, or rheumatism. His family history was very satisfactory, the majority of his relatives being remarkable from their longevity. On May 12th, he reported himself ill with sore throat. This was followed, in a week's time, by sudden loss of voice, for which he was treated by a practitioner, who said he suffered from diphtheria. During his convalescence, three weeks



later, when dressing in the morning, he discovered his nose had become blue and swollen during the night, "in fact, resembling an overgrown mulberry." This was followed, in a day or two afterwards, by a

similar appearance in the pulps of the fingers of his right hand and in his ears. In the following week, the ring and little fingers of the left hand were attacked in the same manner, and gave him considerable pain. The discolouration of the fingers steadily increased until, at the end of three weeks, they were quite black along

their entire length. The blackness then receded to the middle joints, where blebs formed between the sound flesh and mortified parts. Subsequently, black patches formed on the second and third toes of the right foot, and along its outer margin. His mouth and tongue became swollen and painful, the latter being livid, and an ulcer forming near the tip. His nose was stopped so that he could not breathe through it, and was only cleared by sneezing out some tough brown stuff, which came away with much difficulty.

Careful examination on the day after admission showed that in general he was a well built man, above the average size, and fairly healthy looking, although he stated that he had lost much flesh and become much weaker during his present illness. His hair was grey, but otherwise he looked fresh for his age. He had no arcus senilis, nor had he any signs of general anæmia. His nose was cold and livid. The edges of the helices of both ears were blue, a small dry slough separating from the left. The ungual, and part of the middle phalanges of the ring and little fingers of the left hand, and of all the fingers of the right, were black, dried up, and completely mummified. The remaining fingers of the left hand and both thumbs were cold, glossy, devoid of hairs, and of a dusky red colour at the tips. The ungual phalanges of the second and third toes of the right foot were also sphacelated. The sphacelated portions of the fingers were separated from the sound flesh by bullæ containing turbid serum, but there was no distinct line of demarcation. Careful physical examination of the chest did not reveal anything abnormal, nor could any disease be detected in the radial, ulnar, or posterior tibial arteries of either side. There was no paralysis, sensory or motor. His voice had been regained. The temperature was normal. The urine contained a little albumen, but no casts nor sugar. The blood, examined under the microscope, showed an increase of the white corpuscles. The digestive functions were well performed. He complained of nothing but slight pain and tingling in the fingers occasionally.

Under liberal dietetic and tonic treatment he increased rapidly in weight, and his general condition sufficiently improved for him to go to the country for change of air on September 3rd; and on his return, a month later, Mr. Hyde, finding a well defined line of demarcation, amputated the gangrenous fingers. The sloughs separated from the ear and toes without interference, leaving granulating surfaces underneath, which rapidly healed. The stumps of the gangrenous fingers were slow in healing, and his thumbs and ears were still cold and slightly discoloured, but he was sufficiently well to resume his duty as instructor of police.

Remarks by Dr. Allman Powell.—The above case of symmetrical gangrene is interesting as having occurred after diphtheria, when the vaso-motor, or trophic, lesions which occasioned the gangrene would appear to have taken the place of post-diphtheritic paralysis.

That the case was one of diphtheria, I ascertained from the practitioner who attended him before admission. The fact that he had eaten the same baker's bread for six years, and that no one else in the house suffered, excluded gangrene from ergotism. The absence of any general anæmia, or of any disease or feebleness of the circulation, the presence of swelling prior to the shrivelling of the gangrenous parts, and the occurrence of the disease in summer, make the case more remarkable.

August 19th. I met this patient on duty at the assizes a short time ago; he looked and expressed himself as in excellent health. — *British Medical Journal*, Jan. 30, 1886, p. 203.

38.—ON THE AFTER-TREATMENT OF TRACHEOTOMY.

By S. HERBERT HABERSHON, M.B., London.

My object in discussing this subject is not to encroach on the domain of the surgeon, but to illustrate, by a few successful cases, a form of treatment initiated by a previous house physician (Dr. Bullar), the value of which is fully borne out by the cases I shall relate, as well as by the cases referred to in a pamphlet recently published by him on the subject.

Seven cases of membranous laryngitis have occurred in Dr. Andrew's wards during the past nine months, in which the laryngeal symptoms were sufficiently urgent to necessitate tracheotomy. Of these, five have recovered. Of the two that ended fatally, one was a case of slow malignant diphtheria in a child aged three and a half. The child died on the eighth day of the disease, and the second day after the operation was performed. The symptoms were severe. There was extreme foetor of the discharge from the nose and larynx, a large amount of albumen in the urine, great anæmia, protracted and uncontrollable vomiting, and a temperature high throughout, and rising to 106° before death. The second fatal case was that of an infant aged seven months. The lungs were affected on admission, but the urgency and predominance of laryngeal symptoms rendered tracheotomy advisable. The child died from asphyxia twenty-six hours after the operation from extension of the disease in the lungs.

The other five cases present a brighter record. Before relating them, I shall mention the form of treatment adopted, and afterwards illustrate it by reference to the cases.

In all cases of diphtheria, provided the disease is not of a sufficiently malignant type to kill by the virulence of the poison, the great difficulty in treatment seems to be to persuade the patient to take sufficient nourishment. If the strength can be maintained for a period long enough to allow the disease to be tided over, and the extension of the membranous process stayed, it appears to be possible to combat the anæmia and the debility, which form such

prominent features of the disease, by proper and sufficient nourishing food.

In the earlier days of tracheotomy it seems not to have been thought remarkable that milk or other liquid food given by the mouth should find its way out through the tracheotomy tube. To this passage of food into the trachea the occurrence of local pneumonias is probably due, to which the term *deglutition pneumonia* has been applied.

Undoubtedly the presence of a tube in the trachea favours the passage of food into the windpipe, probably by diminishing the sensibility of the epiglottis and by removing the safeguard against such an occurrence during health, or from the fact that too little air passes into the larynx above the tube to enable fluid to be expelled. A third and not unimportant factor is also present. In the action of deglutition the closure of the aperture of the larynx by the cushion at the base of the epiglottis is assisted by the raising of the thyroid cartilage behind the hyoid bone by means of the laryngeal muscles. This movement of the thyroid is in some measure prevented by the presence of a tube in the trachea.

Again, the difficulty is great of giving nourishment in sufficient quantity (especially in the case of a child) without disturbing the patient's rest. A child will not take a large amount of fluid at once on account of the pain caused by the act of swallowing, and the consequence is that it has to be fed at frequent intervals, night and day, either with a teaspoon or in small sips. Thus the natural physiological functions of the stomach are interfered with, and in addition the sleep of the patient is disturbed. The child has to be awaked every quarter or half-an-hour, and if this is not done, enough food cannot be given.

The plan Dr. Bullar suggested, which Dr. Andrew has allowed to be adopted in all his cases since March, is to feed the patient by a soft catheter or elastic tube passed directly into the stomach through the nose. In a child a No. 4 to No. 6 soft rubber catheter is used. A small piece of glass tubing is fixed in the outer end of the tube, or an ordinary glass pipette, and the fluid food is placed warm in a brass syringe of 4 to 6 ounces capacity, and slowly forced into the stomach. The end of the brass syringe is kept wedged in the glass tube by placing a short piece of gutta-percha tubing round the conical nozzle of the syringe, of calibre sufficient to enable it to pass into the end of the glass pipette. The first time or two that the tube is passed the child struggles a little, but it is usually easy after the first attempt, and I have occasionally seen the child close its eyes, and even sleep during the process. On one occasion a patient was fed during sleep without being awaked, so free is it from discomfort.

It will be found to simplify the passage of the tube if it be held as a pen with the finger and thumb of the right hand, whilst the

tip of the nose is pressed upwards with the thumb of the left hand, the fingers of the same being placed on the bridge of the nose or on the forehead of the patient; in short, exactly as in the passage of the Eustachian catheter.

It is almost impossible to get the tube into the larynx. If so, only a few inches will pass, and the irritation produced is certain to afford a sure index of the mistake.

A difficulty that sometimes occurs is, that the retching and the efforts at regurgitation bring back the end of the tube into the mouth, where it can be seen coiled up. This can usually be overcome by a second or several trials. If there is any doubt whether the tube be in the stomach from gurgling of clear fluid in the glass pipette, the reaction of the fluid will often serve to distinguish gastric secretion from laryngeal mucus. The reaction is, of course, acid if it be gastric juice, provided that lime-water has not been previously given. Food should be given at least every four hours, the quantity varying from two to six ounces or more, according to the age. Not more than four ounces should be given at the first feeding, and if this be kept down without regurgitation or vomiting, the child should be fed every four hours. In one of the cases reported, a child two and a half years old, it was observed that just before the feeding time the patient was subject to fits of dyspnoea and coughing, apparently from exhaustion. When food was given at shorter intervals (every three hours), it was remarked that these attacks did not occur. In the same patient the food was gradually increased to six ounces every four hours. The indication that too much food has been given is usually that regurgitation or vomiting occurs after feeding, or the patient becomes dyspeptic. (Five illustrative cases conclude the paper.)—*St. Bartholomew's Hospital Reports*, 1885, p. 79.

DISEASES OF THE URINARY ORGANS.

39.—ON CYCLIC ALBUMINURIA (ALBUMINURIA IN THE APPARENTLY HEALTHY).

By F. W. PAVY, M.D., F.R.S., London.

Attention has been recently given to a form of albuminuria which has been spoken of as "albuminuria in the apparently healthy," "physiological albuminuria," "intermittent albuminuria," and by my colleague Dr. Moxon, in the *Guy's Hospital Reports*, vol. xviii., third series, "albuminuria in adolescents." It is important that the albuminuria in question should be distinguished from the ordinary form of albuminuria, as the gravity of the two is diametrically opposed. Several cases have during the last six years fallen under my notice, and I have observed in them a character which has served as a ground of distinction, and

enabled me to express an opinion at the commencement which has been verified by the advance of time. The character I refer to is the diurnal alteration that takes place in the condition of the urine. Examined at one period of the twenty-four hours, the urine is found to contain, it may be, a large amount of albumen, whilst at other periods there is none, and what is observed one day is repeated with more or less closeness the next. These cases thus have a cyclic character belonging to them, and hence my adoption of the term "Cyclic Albuminuria" as the heading of this communication. It appears to me an appropriate one to employ for the purpose of classification. The description to be given of what is noticeable is as follows:—In the early morning the urine is free from albumen. Albumen then shows itself: it may be at 9, 10, or 11 a.m., or not till the early part of the afternoon. After reaching its maximum it declines, and often by the evening it has disappeared. It is rare to find that it has not disappeared by bedtime. The period of diurnal appearance is, without too closely limiting it, pretty uniform for each case. Some days the amount may be observed to fall and then rise again. Also there may be considerable variation in the amount of albumen observed on different days. The condition noticed may go on not only for weeks and months, but even for years. It is not accompanied by any impairment of health, and there are none of the ordinary constitutional indications of the existence of Bright's disease present. In some cases I have noticed that there has been a sharp and unduly forcible cardiac impulse; but the pulse has been soft, and not hard and sustained as in Bright's disease. Such being the history belonging to the albuminuria in question, there is nothing to lead in a direct manner to its recognition, and it is generally in an incidental way that it becomes brought into view. The urine in other respects represents ordinary characters. No casts of tubules are to be observed, but frequently oxalate of lime crystals are present. The age in the cases that have fallen under my notice has varied from nine to forty-nine. Altogether I have seen three cases in children, respectively aged nine, eleven, and thirteen. Two were boys, the other a girl. It is not surprising that the condition should excite grave looks and the shrugging of shoulders on the part of members of the profession, which give alarm to the patient; but there is nothing to show from the experience that has yet been gained that it is to be regarded as an early stage of Bright's disease, or that it leads to anything serious. The kind of albumen present in several of the cases has not been simply ser-albumen, but a mixture of caseiform or alkali-albumen with ser-albumen. I do not propose at the present moment to offer any theory in explanation of these cases. Analogous phenomena are, however, noticeable in the case of persons subject to the phosphatic diathesis. Here the urine may be perfectly bright and clear in the early morning, whilst for a

few hours after breakfast it is turbid from the deposition of phosphates, and becomes clear again in the afternoon, and remains so till the following day after breakfast, when the same cyclic course of events is repeated. Again, without our being able to account for it by the operation of external influence, a diurnal variation occurs in a regular manner of the temperature of the body. An illustration is here afforded of a physiological cyclic change, and other illustrations showing the tendency in this direction might be adduced.

[We reproduce here only one of the six cases recorded in his paper by Dr. Pavy.]

In the spring of 1881 Mr. O. T——, a tall, well-built, well-nourished, healthy-looking young man, twenty-one years of age, discovered the existence of albumen in his urine. He was engaged in practical chemical work, and was led to examine his own urine when suffering from a temporary attack of lumbar pain. To his dismay he found albumen present, and for some time was in a state of mental distress about it. When the case fell under my observation, I desired that specimens of urine passed at different periods of the twenty-four hours should be brought to me for examination, and recognised the case to be one of the class I am describing. Frequent examinations of the urine were made, and at one time this was done for three weeks on every consecutive day. What was observed was this: The urine passed on rising in the morning was never found to contain albumen. Sometimes as early as 10 and 11 a.m., but at other times not till about 2 p.m., albumen began to be perceptible. On first being found, the quantity was slight, but went on increasing till usually about 6 p.m., when the maximum point was reached. It afterwards declined, and usually on going to bed the urine was free from albumen, or, if it contained any, it was only a trace. Breakfast was taken at 8 a.m., lunch at 2 p.m., and dinner at 6 p.m. Beyond the presence of albumen, the urine presented normal characters, except that it threw down oxalate of lime crystals. Casts of tubules were never found. There was no constitutional evidence of Bright's disease. The pulse was soft. There was undue cardiac impulse, but it was sharp, and not heaving. Such was the condition existing in 1881, and, being desirous of knowing whether it had disappeared or not, I wrote in March of the present year requesting that I might be afforded the opportunity of again examining the urine. I received in reply as follows: "In answer to your request of yesterday, I shall be very pleased to do anything I can to be of service to you. For a short time I tested my urine frequently, with the same results. I then gave it up, as I found it only led to my getting mentally uneasy, so that for the last three years I have never tested for albumen. I will try to come and see you, as you request. We are so busy just at present that I am afraid I cannot well get away during business

hours; however, I will try one day next week, and in the meantime will make a few more tests of the urine passed at various periods, and let you know the results when I see you." In the following week I received a visit from Mr. O. T——. He brought with him specimens of urine, and told me he had found that the old condition still existed in the same form as before, the urine being free from albumen in the morning till about noon, the maximum amount being present between 4 and 6 p.m., and the urine being free again about bedtime, or, if not absolutely free, only containing a trace. I examined the specimens brought, and the results obtained confirmed this statement, but the afternoon urine contained less albumen than I had noticed previously. This might have been incidental. The bodily health was good in every way. There had been no illness during the four years that had elapsed, and no deviation from the state before observed was perceptible. I have again procured specimens so as to bring the report of the case up to the present time. The urine passed at 8 a.m. on July 20th was free from albumen, that passed at noon contained a trace, that passed at 5 p.m. a considerable amount, and that on going to bed a trace. The same kind of condition that was before noted, therefore, still exists.

In what I have stated about cyclic albuminuria I do not mean to imply that this is the only form of albuminuria which is associated with the apparently healthy state. On the contrary, I am of opinion that albumen may be persistently present, and yet not necessarily mean that a grave condition exists. I have seen cases which have afforded grounds for this conclusion. The subject is one which requires the light of further inquiry to be thrown upon it.—*Lancet*, Oct. 17, 1885, p. 706.

SURGERY.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES
OF THE BONES, JOINTS, ETC.

40.—ON RE-INFUSION OF BLOOD IN PRIMARY AND OTHER AMPUTATIONS.

By JOHN DUNCAN, M.A., LL.D., Surgeon to the Royal Infirmary,
Edinburgh.

On October 21st, 1885, Dr. Lindsay Porteous, of Kirkcaldy, sent to me a case of railway injury. The left leg had been crushed, and amputation was required in the lower third of the thigh. There had been no hemorrhage at the time of injury; but Dr. Porteous, as a measure of precaution, had placed a tourniquet loosely round the limb, with instructions to tighten it if necessary. Bleeding commenced during the journey; the tourniquet was insufficiently screwed up; and a large quantity of blood was lost before the patient reached the Infirmary. When I saw him eight hours after the accident, he was pallid and collapsed, with a pulse, when perceptible, quick, irregular, and fluttering. Alcohol, ether-injection, and elevation of the limbs, had a scarcely appreciable and quite evanescent effect; and I came to the conclusion that it was impossible he should lose his leg and live through the operation. Intravenous injection seemed the only hope, and it occurred to me that I might to a certain extent utilise the patient's own blood for the purpose. In a large school like this, there is no difficulty in finding blood-givers during the day, but at night a saline fluid is the imperfect alternative.

The patient was anæsthetised with chloroform, followed by ether. While I rapidly removed the limb, the blood which fell from it (in all about three ounces) was caught by an assistant in a dish containing solution of phosphate of soda. After the arteries had been tied, it was difficult for a time to say whether the patient was dead or alive; but I proceeded to inject the blood and phosphate of soda, mingled with distilled water in the last syringe-ful to increase the quantity. In all, about eight ounces were thrown into the femoral vein on the face of the stump. The quantities are not exact, because the graduated dish was necessarily flat to catch the blood, but are correct within a drachm, or at most two.

The patient was then quickly put to bed, placed in front of the fire, and teaspoonfuls of weak brandy and water were given to him frequently. The pulse had become quite perceptible by the time

he had been got into bed ; it steadily improved during the night, and the man is now perfectly well.

The dominant idea in the procedure is to utilise the blood flowing from the amputated limb, which otherwise must necessarily be lost. Especially in shattered limbs, it is difficult to empty thoroughly before amputating ; and both at the moment of incision, and also while ligaturing the arteries, a certain quantity of blood may always be caught. The importance of even a few ounces in cases of collapse can hardly be overestimated. No doubt, a simple saline fluid may for a time supply the means of working to the empty heart and vessels ; but, in my experience, the benefit is only temporary—for one reason, because it is essential that the blood-forming organs should act ; and they require suitable nourishment, like every other part of the frame.

I am convinced that this little operation, so easily performed, will save many lives in the collapse of primary amputations, and will prove beneficial to wasted and anæmic patients in the major amputations for disease. I have now performed it in a sufficient number of cases, one of them an amputation at the hip performed by my colleague, Dr. Miller, to enable me to speak with confidence as to its safety and value.

The idea would probably not have occurred to me, had I not, during the previous six months, had considerable experience in transfusion of blood from one human being to another. My colleague, Dr. Brakenridge, having under his care a case of pernicious anæmia, in which the decadence was so rapid that the end could not be postponed many weeks, came to the conclusion that it would be right to try transfusion of blood, and consulted me on the subject. I had tried myself, or seen tried by others, most of the instruments hitherto in use for direct transfusion, and had arrived at the opinion that all were unsatisfactory, either from the risk attending them, or from liability to failure in attaining the desired end. It appeared to me, therefore, that it was necessary to adopt the method of defibrination, or to delay the coagulation of the blood by some of the saline additions which have already been used for the purpose, in order that a sufficient quantity might be injected with sufficient slowness.

In making inquiry as to the experience of others, I was informed by my colleague, Dr. Cotterill, that he had on one occasion performed transfusion of blood mingled with phosphate of soda, as recommended by Dr. Pavy, and that the immediate result of the operation had been all that could be desired. As the power of phosphate of soda to delay coagulation is undoubted, I determined to adopt a plan whose feasibility was thus assured.

It is unnecessary now to go into the history of the pernicious anæmia. Dr. Brakenridge will doubtless give the results of his very careful observation, when the case may be regarded as com-

plete. Suffice it to say that, by four transfusions, the quantity of the red corpuscles and hæmoglobin was trebled, and that the improvement has been maintained for two months without further operation.

Before describing the mode of operating, I will merely mention another of our transfusion cases, highly creditable to my last house-surgeon, Dr. Carmichael, which he intends to publish more fully, along with some important experimental investigations on which he is engaged. I had operated in a case of empyema by resection of portions of seven ribs. A certain amount of blood was unavoidably lost during the operation, and through the night slow oozing took place into the thoracic cavity, making little show outside the dressings. Next day the patient seemed moribund; and, as he found that I was from home, Dr. Carmichael, who had admirably assisted me in the other operations, had himself bled to six ounces, and injected that quantity with phosphate solution into the patient's veins. The man immediately rallied, and is now quite well.

An operation of this kind plainly requires attention to detail, but its extreme simplicity renders easy the avoidance of mistakes, some of which I committed in the earlier instances. I attach much importance to the perfect fluidity of the blood, and the aseptic condition of all the instruments. In no case had our patients the slightest fever, rigor, or disturbance of any sort, subsequent to the operation. Glass was purified by prolonged immersion in a solution of bichloride of mercury, metal in carbolic acid.

For introduction into the vein of the receiver, I use a short glass-tube, of the size of a No. 6 catheter, having a pen-shaped point. To its other end, made slightly bulbous, about two inches of india-rubber tubing is attached. A simple glass syringe, holding four ounces, whose nozzle fits the tubing, is perfectly effective. I keep up the temperature by surrounding it with boric lint, wrung out of hot water. A syringe which I had made with an outer glass envelope to hold warm water, I find rather cumbrous. A graduated glass vessel, kept floating in warm water, contains the solution of phosphate of soda, and receives the blood.

All are washed with aseptic water after removal from the antiseptic solution, and before being used.

In amputations, the most convenient vein is selected on the face of the stump, the glass point is inserted, and a catgut ligature put round it. While the process of ligaturing the arteries is going on, the blood is caught by one assistant, who adds the soda-solution as required, and is slowly injected by another. There is no time wasted, and the amount put into the circulation is precisely proportioned to what the patient would otherwise have lost, *plus* what amount of saline solution the surgeon may think right and appropriate to the case.

In the case of pernicious anæmia to which I have referred, a vein in the arm of the blood-receiver was exposed, and under it a double thread of catgut was passed. I then drew the blood from the donor into the dish containing the phosphate of soda, with which it was gently mixed by means of a glass rod. While an assistant filled the syringe, I opened the exposed vein of the receiver, the lower thread of catgut being gently pulled upon to prevent bleeding. The tube was now inserted, the upper thread tied round it with one knot, and the lower definitely secured and cut short. The blood was next slowly injected, the india-rubber tubing being pinched when the syringe required to be refilled. The upper catgut was finally tied and cut short when the operation was completed, and the little wound was stitched up.

There is a limit to the rate of injection on each side. One may possibly take longer to inject than the blood will remain fluid, or one may inject too rapidly for the comfort of the patient. In amputation, neither of these can easily happen; but in this case I committed both errors. This point, of course, involves the question as to how much phosphate of soda ought to be added, and as to the coagulating quality of the blood. The solution of phosphate of soda was of 5 per cent., and one part of the solution was added to three parts of blood. A slightly larger proportion is probably advisable, and was frequently used in the amputation cases.

The donors for the pernicious anæmia were healthy and powerful young students. One of them, Mr. Hardyman, found before he was bled that his red corpuscles were largely above the average, and on that occasion six ounces and a half of blood were added to two ounces of soda-solution. I was obliged to stop before the last ounce was injected, because it showed signs of thickening in the dish, and it actually coagulated six or eight minutes afterwards.

On the next occasion, with the same donor, I hastened the operation considerably, in order to avoid this coagulation. The patient, however, had only received four ounces when she experienced so much distress from pain in the back and forcible cardiac action, that I ceased injecting. It was annoying to find that, by an error in compounding, the soda-solution had been made of double strength, and that the remaining blood had not coagulated half-an-hour afterwards.

Experience, in short, shows that, in such a case, and with sufficient phosphate of soda, one may occupy at least twenty or thirty minutes in injecting; and that at a slow rate the patient will experience not the least discomfort. At the same time, the effect will vary with the condition of the patient. In one amputation, I injected eight ounces in five minutes; in the hip, sixteen ounces in about fifteen minutes, without any disturbance. But in the case

of pernicious anæmia, we had already by previous operations added considerably to the vascular contents, and the quantity of blood in the body was daily increasing, so that it is not astonishing that four ounces added to the blood in five minutes should produce unpleasant though evanescent symptoms. The more complete and rapid depletion has been, the more quickly and largely may repletion be effected.

One other observation has to be made. The process of re-injecting the patient's own blood is incompatible with the use of spray or irrigation during the operation. For myself, I am satisfied by experiment and from clinical experience that the spray does not kill micro-organisms in the air; and that in most cases the application of the germicide may safely be delayed till near the end of the operation. With pure hands and instruments, the risk from the air is trifling, and it is not worth considering when a patient is in imminent danger from hemorrhage and collapse.—*British Medical Journal*, Jan. 30, 1886, p. 192.

41.—ON CARIES OF THE CERVICAL SPINE, AND ITS TREATMENT BY A CERVICAL COLLAR.

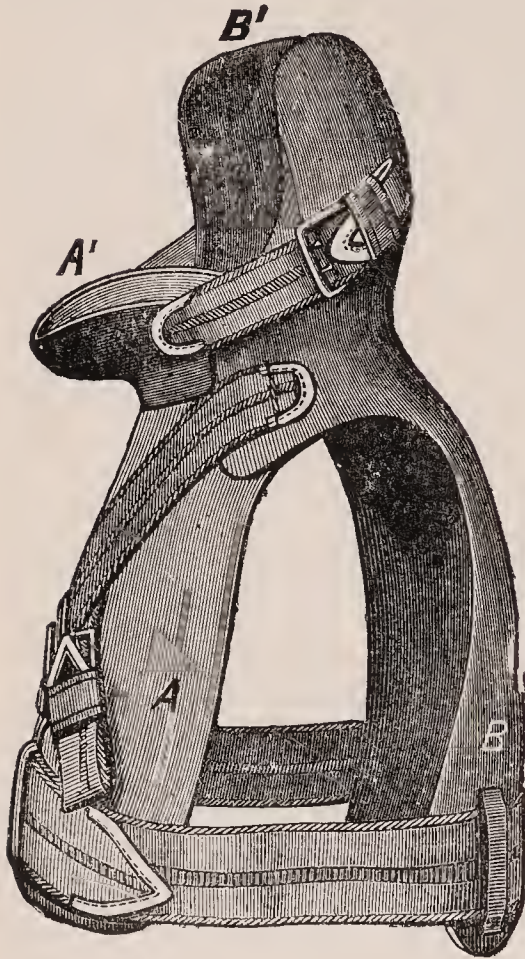
By EDMUND OWEN, F.R.C.S., Surgeon to the Great Ormond St. Hospital for Sick Children, London.

H. M., an anxious-looking boy aged $4\frac{1}{2}$ years, was sent to me for suspected cervical caries, with these remarks: "For a month, he has constantly complained of being tired; there is a stiffness of the muscles at the back of the neck." The occiput was thrown back towards the shoulders, and there fixed by the contracted trapezii, and perhaps by the complexi, so that these muscles formed a prominent cord-like mass along the arched neck. In this way the neck was steadied against shock. He could not bend forwards his head, nor turn his face, without rotating his trunk. Pressure on the head gave rise to pain all around the neck; he complained of frequent pains in the shoulders and in each elbow. (Symmetrical distribution of the pains denotes a central source of trouble.) He had much "headache," and he could not hold up his head, or bear his neck to be washed. Eight months before he began to be ill, he had fallen downstairs; and I have little doubt that all his trouble was due to the injury which his neck then received.

I had him fitted with a "cervical collar," and kept him at rest as much as possible. As soon as he began to wear the collar, he lost his pains, and began to grow happy and fat; he liked wearing it, and would begin to cry if one threatened to take it off. Possibly there was never any definite ulceration of the bodies of the vertebræ in this case, but there was certainly cervical osteitis—potential caries. After he had had five months of rest, and of wearing the collar, he could shake and nod his head, but it was still

a little thrown back; he looked well, and he asked if he might go to school.

This is one of many similar reports of cases of cervical caries which have been treated with the cervical collar.



A A' Breast-plate and chin-piece.

B B' Dorsal-plate and head-piece.

The jury-mast treatment of Professor Sayre has received an honest, extensive, and, I trust, an intelligent trial at my hands, and I have now entirely discarded it. The jury-mast is heavy and cumbersome, and offers no advantage over the rigid collar which bears up the chin and occiput from below. The rotatory movement which its construction allows is a real disadvantage, for I regard rest, and always rest, as the indication for the treatment in all these cases.

That the cervical collar gives relief by insuring this rest, rather than by lifting the superimposed weight, may be inferred from the fact that the collar is equally useful when the diseased segment of the column is in the high dorsal region.

To recapitulate, then, when the disease is in the cervical region there may be pains, possibly called "headache," over the area of the greater and lesser occipital nerves, both of which come from

the second cervical nerve; or in that of the great auricular from the second and third; the third nerve joins in the formation of the transverse superficial cervical nerve, which supplies the skin over the front of the neck. The pains will be worse after play or exercise, and the child will not bear pressure on the top of, nor will it shake or turn the head. Little children are not clever at describing symptoms, and a headache "somewhere here" is apt to be the result of irritation of high cervical nerves. If the disease be lower in the neck, pain may be referred to the pectoral or deltoid regions, where the supraclavicular branches are distributed. If the lowest cervical vertebræ be inflamed, the trunks of nerve which enter into the brachial plexus will be liable to compression, pain being referred to the shoulders, elbows, or even to the fingers. For pains in each shoulder, or each arm, the cervical spine should straight-

way be examined. And even if obscure pains be not symmetrical, but confined to one side, attention should be directed to the spine.

This collar is made by Mr. Spratt, 48, New Bond Street; it is moulded on after the leather has been soaked in a pail of hot water; the hardened case is afterwards lined with chamois leather, and the front and back halves are made to overlap on the shoulders, and are fixed together by straps and buckles. The material is cow-hide, which has not been "dressed," that is, impregnated with oil.

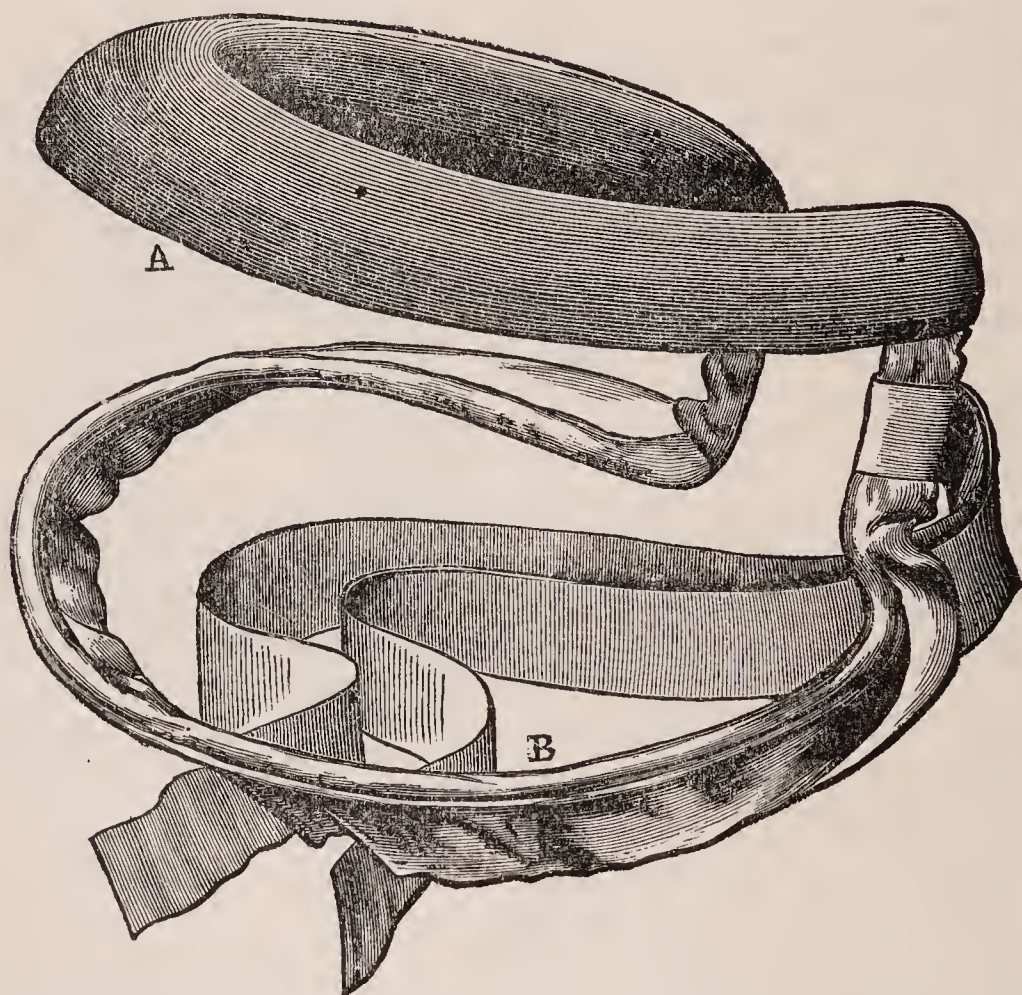
Amongst the advantages of the collar are its lightness, its durability, its easy fit, and the security which it affords; which last is so great, that it is not necessary to keep the child always in the horizontal position, though, of course, he must be kept in comparative rest and quiet. I would again remark that I lay no claim to the invention of this collar. It was evolved in Mr. Spratt's establishment, and the mechanic who is chiefly concerned in its production informs me that he got the idea from the common leather hat-box. The pattern is first shaped out in brown paper. The supports have long been used at the Great Ormond Street Hospital, and probably at other places.—*British Medical Journal*, Oct. 31, p. 824.

42.—ON A NEW APPARATUS FOR SUPPORTING THE HEAD IN DISEASE OF THE CERVICAL SPINE.

By HENRY E. CLARK, M.R.C.S., Surg. to Glasgow Royal Infirmary.

While it is universally admitted that the support of the head is one of the most essential points in the treatment of disease of the upper cervical vertebræ, and especially of atlanto-axial and occipito-atlantal disease, the appliances hitherto devised to attain this end have only imperfectly succeeded. The mode of treatment of acute and subacute cases of occipito-atlantal disease which is found to give the best results, consists in keeping the patient in bed in the supine position, the head being fixed by means of a large collar round the neck, to which are attached weights running over large pulleys, and counter-extension being secured by inclining the bed from the head downwards. This arrangement I first saw carried out in the wards of Professor Ogston, at Aberdeen, though I cannot say if he originated it. In the chronic form of the disease, and in the early and late stages of the acute form when recovery takes place, it is not desirable that the patient should be kept in bed; and some apparatus is required which will support the head, and take off its weight from the spine, while it will admit of the patient going about. The apparatus which has been most employed in recent years for this purpose, is Sayre's "jury-mast," undoubtedly an ingenious and in some respects admirable appliance, but having many defects which seriously limit its use. Of these, the most important is that, from the length and elasticity of the bent bar

carrying the bridle, the supporting power is very small ; so that, in order to make the appliance of any value at all, the straps have to be pulled up very tight. To put the matter briefly, if the support be effective, it is not comfortable, and, if comfortable, it is not effective. My conviction is that it is never really effective ; and most surgeons who have used the “jury-mast” have noticed that the patient still rests his chin upon his hands—a sure proof that the weight is not removed.



My colleague, Dr. Fleming, has recently endeavoured to accomplish the end aimed at, by means of an inflating air-bag, forming a collar which rests on the shoulders, or on a poroplastic mould supported by the latter (*Glasgow Med. Jour.*, May, 1884). This is very comfortable to the patient, and, when first applied, appears considerably to relieve his symptoms ; but, unfortunately, air is so compressible that the supporting power of such bags is small, even if they remain air-tight, and few that I have tried have held the air for more than two or three hours.

A few months ago I had under my care a young girl suffering from disease of the fifth and sixth cervical vertebræ, for whom we used a plaster-of-Paris jacket ; notwithstanding that the bandage

was carried over the shoulders and well up into the neck, she still found it necessary to support her head upon her hands, and we therefore added a Fleming's bag, which she wore for a week or two. This gave a little additional support, but not much, and she constantly had recourse to her old plan of relief, namely, by resting her chin on her hands, and her elbows on her knees. Perceiving this, her father, who is a blacksmith and a man of some ingenuity, set to work to devise something which would support the head, and produced the apparatus here shown.

It consists of two incomplete rings, A and B—the upper for supporting the head, and the lower to rest on the shoulders. Being formed of one piece of steel, the two rings are continuous at the back; and the upright portions, passing from the lower to the upper, support the latter, and, when in use, support the head also. The lower ring is formed of round steel; but it is flattened for the upper, the flattening commencing about the middle of the vertical supports. The upper ring, being formed of the ends of the bar, is incomplete in front; but the extremities are joined by means of wire, or are loosely clamped, their ends being turned down to form flanges, so as to facilitate this connection. It is found that this arrangement allows the easy application of the apparatus, and makes the pad fit more comfortably to the chin and lower jaw than if the upper ring were rigid. On the upper ring is placed a broad piece of millboard, and this serves to support a pad sufficiently broad and thick to form a comfortable rest. The lower ring in the sample here figured is covered with leather, and the upper with velvet; at the back, there is a tie to keep the apparatus in place when in use. It is, in many cases, found to be best to use a poroplastic collar, to give a firm resting surface for the shoulder-ring; or sometimes it may be desirable to employ a Sayre's jacket, carrying it over the shoulders, and placing the apparatus on this. In the case of the blacksmith's little girl, in whom the disease was in the lower cervical vertebræ, both the jacket and apparatus were used, with excellent effect. As the support entirely depends on the uprights at the back, there is considerable elasticity; but the amount of this will vary with the thickness of the steel and the extent to which the bar is flattened, so that modifications may require to be made to suit individual cases. I am informed that, for a case under the care of Dr. Donald, of Paisley, adjustable bars have been added, connecting the two rings about the middle of each lateral aspect; and that these have been found to answer well. Dr. Donald has also used the collar in several other cases, and has a high opinion of its value. I hope that he will be persuaded to publish the result of his observations.

The apparatus is very simple and inexpensive. The inventor is Mr. John Moore, Linwood, near Paisley. They can be obtained from Messrs. W. B. Hilliard and Son, Renfield Street, Glasgow.

Price 7s. 6d. to 10s., post free. Sayre's "jury-mast" costs from £1 5s. to £1 10s., and cannot be applied without the plaster-jacket, involving a further outlay of ten or fifteen shillings. Fleming's bags cost £1 ls. each. This apparatus is more effective than either of these.

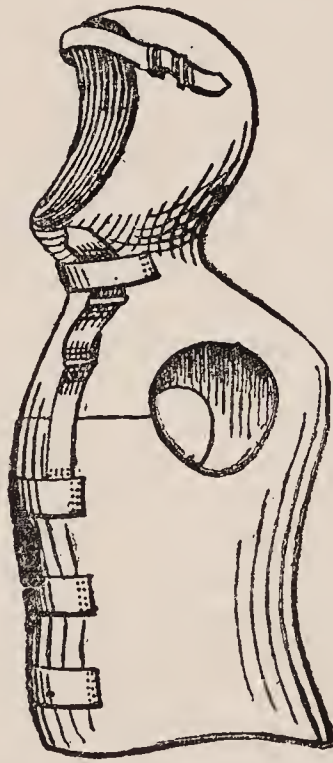
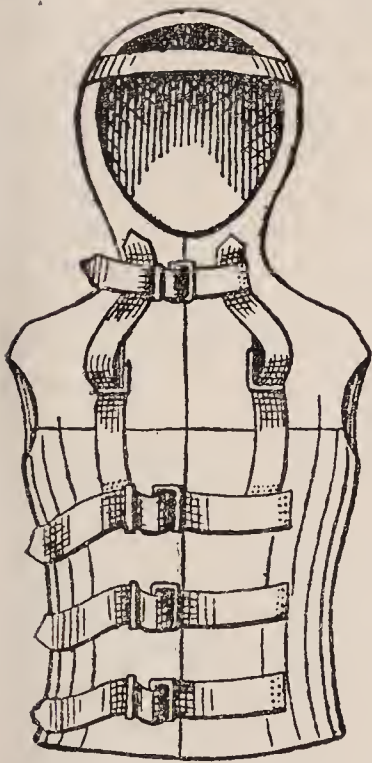
As to the originality of Mr. Moore's support: there are several appliances, chiefly intended for the treatment of wry-neck, which have a general resemblance to the apparatus herein described; but I am satisfied that the differences are so important and vital as to constitute it essentially a new means of treatment; and I am quite sure that Mr. Moore received no aid from any knowledge of other supports. The mechanical arrangement which comes nearest to it is an "elastic spring head-rest for torticollis," devised by Dr. J. R. Wood, of New York, figured in Messrs. Tiemann's catalogue.—*British Medical Journal*, Oct. 31, 1885, p. 825.

43.—TREATMENT OF CERVICAL ANGULAR CURVATURE— COMBINED POROPLASTIC JACKET AND COLLAR.

By W. J. WALSHAM, F.R.C.S., Surgeon-in-Charge of the Orthopaedic Department, St. Bartholomew's Hospital.

This apparatus, which is made out of one piece of felt, consists, as will be seen, of an ordinary poroplastic felt jacket, together with an accurately fitting collar and helmet-piece. The jacket and collar are continuous posteriorly; the collar-portion is carried upwards over the occiput, and, after encircling the neck, is bent downwards over the shoulders and upper part of the front of the chest, where it overlaps the jacket-portion, and is there secured in position by straps and buckles. In ordering the apparatus, measurements in ordinary cases will suffice; but, where there is much deformity, a plaster cast of the part must first be made, and on this the jacket moulded. It is, of course, fitted on like the ordinary jacket, by thoroughly softening the felt in the steam-oven, and then accurately moulding it to the figure whilst in its plastic state. The cases for which it is especially adapted are those where the caries is situated too high in the spine to be benefited by a common felt or plaster jacket, and too low to be treated by the various collars in use for cervical caries; in short, for cases in which the jury-mast is now frequently used. I have employed the latter contrivance—that is, the jury-mast—in a considerable number of cases, in combination with both plaster-of-Paris and with felt; and I must confess that it has not answered very well—at least, in hospital patients—in my hands; my experience being similar to that of Mr. Marsh, my predecessor in the department, who found in the greater number of patients, on their subsequent visits, the cross-bar simply resting on the head. This condition of things is in some instances, no doubt, due, as pointed out by Prof. Sayre, to time not having been allowed for the plaster

to set before the patient was permitted to resume the upright position. But in children under the age of 9 or 10, the failure of the jury-mast is caused by the slipping downwards of the plaster or felt jacket, in consequence of the pelvis being in them as yet undeveloped, and their thorax forming, with the pelvis, a cone, with the narrow end downwards. Indeed, Prof. Sayre himself admits that for this reason, in young children, the jury-mast is of no service; and for such he merely advises the recumbent position, combined with a plaster case, to allow them to be moved with as little disturbance as possible of the diseased spine. It is in this



class of cases, that is, in children under 9 or 10 years of age—that the apparatus I now show appears to be especially suitable; as, embracing as it does the shoulders, neck, and head, any slipping of the jacket downwards is effectually prevented. But, at first sight, it might appear

that, in consequence of thus resting on the shoulders, and having no base of support in the pelvis, the jacket does not remove pressure from the diseased vertebræ, but only adds its own weight to that of the head, neck, and arms, which the diseased parts had already to bear. This, however, does not appear to me to be the case. Now, I think I am right in saying that it has generally been assumed that the ordinary jacket, whether made of plaster, felt, or other material, removes the pressure from the diseased spine by transmitting the weight of the parts above the disease through the substance of the jacket to the pelvis on which it rests below. From this, it has been argued that in children under 10, and in adult males in whom the pelvis offers no basis of support, the jacket is of no service in removing the pressure from the diseased spine. In considering this question, an important point appears often to have been lost sight of; namely, that, to remove pressure from the diseased vertebral bodies, it is not necessary

that the weight of the parts above should be diverted from the spine and transmitted through the jacket, but only that it should not be transmitted through the diseased bodies. A glance at this spine, from which I have removed the bodies of two of the vertebræ, will show that the posterior part of the column—namely, the articular process, arches, etc.—is capable of transmitting any reasonable weight that can be put upon it; and that none of this weight is transmitted through the bodies of the vertebræ, if the spine be held sufficiently straight to prevent the bodies above and below from coming into contact. It is hardly necessary to say that, if this spine were enclosed in a tube, although the tube fitted quite loosely, the antero-superior support which the spine above and below receives from the tube would prevent the bodies from coming into apposition, and determine the transmission of the weight through the posterior part of the column. Now, I take it that the action of a jacket is similar to that of such a tube, and, therefore, that it is not necessary for it to rest on an expanded base, and to transmit through its substance the weight of the parts above the disease to the pelvis; but only that it should fairly closely embrace the pelvis and thorax, so as to prevent the spine from falling forwards, and the vertebral bodies from being pressed together. This, I believe, is accomplished when the jacket is properly moulded to the trunk, during very moderate extension, or with the patient in the recumbent posture, and when prevented from slipping downwards in the way here suggested by this apparatus. But, in whatever way the jacket may act, the results I have obtained by it have been very encouraging. Several of the children, who could not stand before it was applied, were able to walk a few weeks afterwards. The gravest objection to which it appears open, to my mind, is, that it is likely to embarrass thoracic breathing; but this is an evil incidental to all forms of jacket, although by Prof. Sayre it is hardly regarded as such, as he believes the controlling action of the jacket on the movements of the ribs gives further rest to the diseased vertebræ. But, although thoracic breathing is undoubtedly interfered with, I do not think that this interference is greater than that which occurs when the ordinary felt or plastic jacket is used: and in these I do not think that the movements of the ribs are as much impeded as Prof. Sayre would have us believe. Indeed, in all the cases I have seen, the fingers could be passed between the jacket and the thorax; and, in the apparatus I show to-night, distinct movements of the ribs can be felt on placing the hand in front of it. The advantages of this combined jacket and collar over the jury-mast, further than that it does not slip down in young children and males, are: that the parts are held more steady; that the rotatory and lateral movements of the neck in cervical caries are controlled; and there are no straps to stretch, or to be in different states of tension, according

to the varying positions of the head; and that the patient can lie down with greater comfort.

And here I should say that, although I advocate moderate exercise for the purpose of sustaining the general health, I am sure that this ought to be combined with long daily periods of recumbency.—*British Medical Journal*, Oct. 31, 1885, p. 826.

[See also 'Angular Curvature of Spine' in *Synopsis*.]

44.—ON A CASE OF SEPARATION OF THE EPIPHYSIS OF THE METACARPAL BONE OF THE THUMB.

By R. CLEMENT LUCAS, Sen. Assistant Surgeon to Guy's Hospital.

This injury must be extremely rare, and I am unable to find any recorded case. For this reason it may be well to report an instance, the exact character of which was determined with certainty by examination under chloroform. The injury resembles dislocation of the base of the metacarpal bone, and I can imagine that it might be very readily overlooked, especially by such as may have become oblivious to the exceptional arrangement of ossific centres, which distinguishes this metacarpal bone from its fellows and brings it into alliance with the phalanges.

C. W.—, aged sixteen, sought advice in the surgery of Guy's Hospital on March 5th, 1885. He stated that he had been playing with another lad, and that he had fallen with his hand bent under him, the weight of his body being received upon the outer side of the left thumb. The thumb was somewhat bruised and painful, and he was unable to move or use it without great pain. There was a projection in a direction outwards and backwards at the base of the metacarpal bone, which at first sight appeared to be caused by a dislocation at the carpo-metacarpal joint. The case had been seen by the dresser, and he had attempted to draw the projecting bone into place; and afterwards by Mr. Targett, the house-surgeon. Mr. Targett being also in doubt as to the nature of the case, requested me to examine it. Tracing the metacarpal bone down towards its base, I found that it terminated in a projection situated on the outer and posterior aspect of the thenar eminence. It could be pressed into place without eliciting crepitus, and had a tendency to recur to its former position. Seizing the trapezium between the finger and thumb of one hand and the metacarpal bone in a similar way with the other, I found that the site of movement was too low to be in the joint between these bones. There being no true crepitus elicited when moved to and fro in this manner, it was evident that the deformity must be due to a separation of the epiphysis, and not to a fracture of the bone. To make quite sure of the diagnosis, and to place the bone in the best possible position for recovery, chloroform was then administered, and it became evident to all who examined the case when the pain of manipula-

tion was overcome by the anæsthetic, that the case could not be other than a separation of the epiphysis. After reduction by pressure and extension, a well-padded splint was applied from the wrist to the end of the thumb on its dorsal aspect. The case was afterwards watched by Mr. Targett, and I understood from him that complete recovery without deformity took place in about three weeks.

The record of this case may lead to more careful examination of patients under twenty who may have received injuries to their metacarpal bones. There can be little doubt that several cases reported as fracture of the head of some one of the other metacarpal bones, were, in reality, cases of separation of the epiphysis. It may be of little moment as regards treatment of these small bones whether the case be thought one of dislocation, fracture, or separation of the epiphysis; but an inexact diagnosis is never satisfactory, and it should be the aim of every surgeon to gain as explicit an understanding of his cases as a careful and complete examination will allow him to secure.—*Lancet*, Oct. 31, 1885, p. 801.

45.—ON SUPPURATION IN HIP-DISEASE.

By GEORGE A. WRIGHT, F.R.C.S., Surgeon to the Children's Hospital, Pendlebury, Manchester.

The vast majority of cases of hip-disease go on to suppuration. A certain number of instances of acute traumatic synovitis get well without it, and a small number of cases get well by the process of removal of the inflamed end of the bone without suppuration—a *caries sicca*, a *non suppurative osteitis*, as in a good case recorded by Ford; but the greater number by far go on to the formation of pus. Yet of this number by no means all develop abscesses which open and discharge externally. Suppuration within the cavity of the joint takes place and even bursts the capsule, and yet by absorption of the fluid and caseation, or removal more slowly of the solid elements, the swelling caused by the abscess may disappear and the case recover. Still I am convinced that nearly every case of chronic disease of the hip, if the joint was examined, would at a certain period of its course be found to contain pus.

When the joint cavity suppurates, the pus may take very various courses after; by absorption of the capsule, it has burst from the joint; but first it may escape from the joint in several different spots, usually I think at the posterior part, sometimes on the inner, sometimes on the outer side; occasionally it finds its way probably through the opening in the capsule through which the branch of the internal circumflex artery enters, through the front of the capsule. As soon as the matter has left the joint it usually tends to burrow in one direction or another, not, however, always, for sometimes the relief of the tension diminishes the irritation, and for a

time pus formation ceases. Usually it tracks among the muscles and takes one of several directions. It may pass forward beneath the rectus femoris and point at the anterior border of the tensor vagina femoris; it may travel down the thigh and point at a lower part of the edge of this muscle; it may gravitate backward and open at the upper or posterior border of the great trochanter, or farther still, at the lower border of the gluteus maximus; it may reach to the perineum, extend along the adductor tendons, and come to the surface at the inner side of the thigh; or again it may pierce the skin just at the inner angle of the fold of the groin between the scrotum or labium and the thigh. It may travel up the sheath of the psoas and point above Poupart's ligament, or, travelling over the brim of the pelvis, may then gravitate downwards, and burst into the rectum or the ischio-rectal fossa, or escape through the sciatic notch. Or travelling downwards it may find its way to the lower part of the thigh, and open in the popliteal space, or by the side of the knee. Lastly, it may burst at different times in any number of these spots; I have the record of a case, kindly lent me by Mr. Lund, in which there were no less than twenty-one different openings. Various attempts have been made to utilise the fact of these many different routes followed by suppuration to gain knowledge of the position of the lesion, but with only partial success.

From the cases I have watched I think the conclusion may be drawn that when an abscess points on the front of the limb above a line drawn through the upper border of the great trochanter, there is disease of the pelvis, and this is the more certain the higher and the more internal the opening. I, of course, exclude superficial abscesses that sometimes occur from glandular suppuration, although, as I have already remarked, they are most commonly affected in pelvic disease. Abscess pointing between the scrotum or labium and the thigh, I always look upon as of serious import, indicating pelvic caries.—*Archives of Pediatrics*, Nov. 1885, p. 652.

46.—NOTES ON HIP-JOINT ABSCESS.

By EDMUND OWEN, F.R.C.S., &c., London.

The occurrence of abscess in the progress of disease of the hip-joint is common enough, but the question as to what had better be done with such abscess cannot always be answered off-hand. The signs of the formation of abscess may be increasing pain, a rise of a few degrees in the temperature chart, a fulness in the upper part of the wasted thigh, and a decline in the general health of the child. But sometimes pus collects without the surgeon's attention being specially attracted to the part, and the abscess is discovered, almost by chance, as an obscurely fluctuating fulness below or in front of

the great trochanter, at the origin of the adductors, or just beneath the middle of Poupart's ligament. In the first and second case the pus had probably escaped through the thin posterior part of the capsular ligament, and thence worked its way round. In the last case, a comparatively rare one, it had made its exit through the perforation in the front of the capsule by which the bursa beneath the psoas communicates with the interior of the joint.

Aspiration.—I confess that my experience with aspiration of hip abscess has not been specially satisfactory. Although the instrument used may have been a slender one, still within a few days of its employment pus has been seen leaking from the site of the puncture. In two of the five cases under consideration a disappointing leakage had thus occurred. Nevertheless, repeated aspiration should always start the treatment of hip abscess, unless the inflammatory condition be acute and the pressure symptoms severe. If the pus be thick and curdy the cannula will not serve, and other means must be employed; so also if the re-accumulation of pus be rapid and repeated puncture fail to make headway. And if aspiration be followed, as it may be, by acute local inflammation and constitutional disturbance, something more is needed.

Incision.—From one or other of the reasons just enumerated the hip-joint abscess in all five children (their ages varied from three to seven years) had to be freely incised by the house-surgeon, Mr. Lewis. From some of the abscess cavities, after the escape of pus, much curdy matter, granular debris, and shreddy material were squeezed or scraped. The cavity was then thoroughly washed out with a solution of zinc chloride or mercuric chloride. Provision was made for drainage, and the neighbouring surface was dusted with iodoform and firmly compressed with pads of wood-wool and bandage. From time to time the cavity was again washed out and fresh pads reapplied. The drainage-tube, that useful but much abused accessory, was discarded at the earliest possible moment. These notes cannot be ended, as reports in the *Lancet* so generally are, with the remark that each patient after a thorough treatment made a rapid and complete recovery. That, unfortunately, is not the way of hip cases. But this may be said, that after the evacuation of those abscesses which were unamenable to aspiration, the temperature, which had been high before, generally came down, and that which had been tolerably low before showed little or no disturbance; that the health and comfort of the child improved and the local condition greatly changed for the better; that the wound remained quiet, in some cases discharging thin pus, and in some cases dwindling into a narrow fistula; and that in one case at least the abscess wound was healed within a month.

Night screams.—In two of the five cases it was noted that after aspiration the children ceased to scream at night. Doubtless this was on account of the tension being removed from certain filaments

of sensory nerves. The opinion is rather widely held, I think, that starting and screaming at night should be taken as evidence of ulceration of articular cartilage having set in. I doubt, however, if there be any direct association between these conditions. Night-startings may occur without ulceration of cartilage; and, on the other hand, extensive ulceration may exist without such startings. Moreover, ulceration of cartilage may be far advanced, and yet the signs of local and general disturbance may be but slight, the temperature-chart showing hardly any variation from the normal line.—*Lancet*, February 20, 1886, p. 345.

47.—ON THE INDICATIONS FOR EXCISION OF THE HIP, AND ITS RESULTS.

By LEROY MILTON YALE, M.D., New York.

Nor is it clear that destructive changes in the joint without evident suppuration often present a vital indication for excision. A vicious form of caries, characterised by great suffering and great destructiveness of tissues without much pus formation (caries sicca) is probably best met by resection. But of ordinary caries this is not true. It is a matter of common experience to find cases in which the destructive process is evidenced by the misplacement of the trochanter, which go through the whole course to recovery without any external evidence of suppuration. Caumont has taken the trouble to place such cases by themselves in his report. Of those treated expectantly, 25 per cent. died; of those excised, 50 per cent.

It is not until suppuration has taken place that any vital indication for resection appears. Even here I believe the dictum of Hueter is far too sweeping when he says: "I hold resection of the hip joint in coxitis to be indicated as soon as an extensive suppuration of the joint manifests itself, or as soon as the course shows that the termination in suppuration can be no longer prevented." Such a statement, however, is the natural outcome of his extremely gloomy views of the results of suppuration. If the opinion I have expressed as to the prognosis of suppurative coxalgia is anywhere near a correct one, resection is only indicated in a minority of cases. The indication comes not from the existence, but from the persistence, of suppuration. If it persists after the drainage of the abscesses and under the best hygienic resources the patient can command, particularly if fever attends the suppuration, then exploration of the joint is indicated, by incision or dilatation of existing fistulæ, with resection or a less extensive extirpation of the diseased parts, as the condition found may demand. And this should not be delayed after the system shows distinct depression from the suppurative process. To wait until the operation is the only escape from impending death is to err on the side of ultra-conservatism. I have not mentioned necrosis or sequestra in the

joint, because under such circumstances some operation for the removal of the dead bone is imperative. Likewise, if perforation of the acetabulum with pelvic abscess exists, we have no resource but resection. True dislocation of the femur with suppuration of the hip joint is of very rare occurrence in ordinary hip-disease, and the indication for excision often urged in this connection is rather orthopædic than vital.

A few words may be said regarding the second claim, that, namely, resection shortens the period of treatment, and that it diminishes the risks, both vital and functional. This is true of those cases that heal promptly and soundly, but only of such. Beside those that are fatal there is a long series of cases in which the patients neither die nor heal, but live years with persistent fistulæ. In Leisrink's tables 12·5 per cent. were "unhealed;" in Holmes's, 26·5 per cent. were "failures." Such cases now are often spoken of as "relapses." Asepsis favors prompt healing of the soft parts, but the union subsequently in many cases breaks down, and the old process is re-established under circumstances in no way improved. Just how frequent these "relapses" are I can not say, but they are often mentioned as "common." My own observations make them about 20 per cent. of all cases operated on. A friend who was in Kiel the past summer quotes Neuber as saying that "about half" of his cases relapsed. This refers, I understand, to the reopening of the wound, with tubercular granulations of its edges. Many of these ultimately do well after excision of the diseased parts.

Lastly, as to function. It is far from proved that resection gives better average results than a "natural" cure. In the question shortening is not the most important element. The shortening from resection is on the average greater than from natural cure, but not so very much. In a case not resected, but of such severity as to bring the operation into consideration, the growth of bone from the upper extremity will have been considerably retarded or arrested, according to the degree in which the epiphyseal cartilage has been affected. In a case resected the growth will be entirely abolished, and some bone already produced must be sacrificed. Ollier points out that, although the total growth in length from the lower extremity of the femur amounts to about twice that from the upper, yet during the first four years of life the two ends contribute about equally, and that afterward the lower increases in activity until its work is, toward the end, about three times that of the upper. The prognosis as to length, then, will vary with the age at which excision is done, very early excision giving much the greatest ultimate shortening. The leaving of the greater trochanter does not much affect this relation, for what it contributes to growth in length is mainly above the joint and does not much increase the efficient length of the bone. The atrophy from in-

activity affects the whole limb and is not materially different in cases resected from those left alone. If a resection was promptly successful, the advantage ought to be in favor of the operation, as permitting more speedy use of the limb.

Again, a useful joint in a lower extremity must be stable as well as mobile. And for most occupations security in the support of the trunk is more essential than motion at any one joint. Mobility with security at the hip after excision is only obtainable when very strong fibrous attachments exist between the pelvis and the remainder of the femur. The destruction from the disease and the necessary extirpation of affected tissues usually prevent the formation of attachments at once strong and flexible. Exceptions occasionally occur, and some very brilliant results have been obtained in which stability existed with very free motion. Some very remarkable attempts at renovation of a hip joint have occurred, and interesting specimens have been described. Nevertheless, as a rule, the motion, if considerable, is combined with such feebleness of support that the femur rides up and down on the pelvis in the act of walking. "Flail-joint," in the usual acceptation of the term as meaning uncontrollable motion in various directions, is rare, and I do not remember to have seen it. It is this insecurity that has led some operators (Ollier, Caumont) to urge that, if the operation is made very late, or in cases where much local damage has been done, if the patient must earn his living, it is better to strive for ankylosis rather than mobility. *A fortiori*, the ankylosis of a natural cure, the limb on the average being longer than after excision, will give for such persons a more useful limb. The compensating mobility of the spinal articulations, if the disease occurs in childhood, is often marvellous. The most striking instance I ever saw is No. 31 in Dr. Sayre's tables of excision; the motion took place in the lumbar spine, not only antero-posteriorly, but laterally, through a wide arc. Statistics (Grosch) show no better functional results for antiseptic operation than were formerly obtained. Functional reasons strengthen the indication for the substitution, whenever possible, of the simple extirpation of diseased tissues for formal excision in that they disturb less the relations of parts. These less radical performances are by the perfection of aseptic precautions rendered safe, and the large removals of bone formerly necessary to prevent accumulations of pus and septic matter seem no longer essential. In the same direction improvement of functional results may be hoped for by the employment in proper cases of the operative manœuvres in which a partial or temporary removal of the trochanter only is resorted to, the muscular attachments being little disturbed.

Further, it should not be forgotten that good functional results as to position and motion can only be obtained by prolonged after-treatment. Neglect in this particular constantly produces great

deformity, and the care required to secure these good results quite answers the claim already alluded to—that resection is a short road to cure.

The conclusion, then, to which the foregoing brings us is, that exsection of the hip is indicated as a life-saving operation only; and that, as it has not been shown that it can save from any dangers except those consequent upon prolonged suppuration, it is, with rare exceptions, only indicated when the suppurative process has evidently reached a dangerous point, and cannot be interrupted by any less serious operation.—*New York Medical Journal*, Nov. 28.

48.—ON CONGENITAL DISLOCATION OF THE HIP.

By WILLIAM ADAMS, F.R.C.S., &c., London.

With regard to the general history and symptoms of this affection, it is well known that there are no symptoms whatever to direct the attention of the accoucheur to the condition of the hip-joint at the period of birth; no malposition of the limb, or immobility: on the contrary, the movements are free in all directions. As a rule, no attention is drawn to the hip-joint until after the period of walking, which is sometimes a little later than in other children, especially when both hip-joints are affected; then, if one hip-joint be affected, the child walks with a limp, and a suspicion of hip-joint disease is naturally raised, and, in several instances, I have known these cases treated for hip-joint disease. When both hip-joints are affected, the child walks with an awkward waddling gait, which, it is thought, it will grow out of; but as these conditions do not disappear, other opinions are taken, and consultations held.

The diagnosis, it must be admitted, is often difficult in fat children, say of the age of $1\frac{1}{2}$ or 2 years; the shortening is slight, not more than half an inch, and all measurements are difficult from the abundance of fat and small size of the bones; but at $2\frac{1}{2}$ or 3 years of age the diagnosis is easily made. 1. We are able to decide that the shortening of the limb is above, and not below, the knee; 2. from the absence of symptoms of hip-joint disease, and free mobility of the joint without pain, congenital dislocation may be assumed to be the cause of the shortening; 3. the crucial test of measurement by the ilio-femoral triangle of Bryant, and also by Nélaton's line, can now be more readily made, and the top of the great trochanter will always be found to be on a level, or nearly so, with the anterior superior spinous process of the ilium, when the patient is standing; that is, a line drawn horizontally backwards from the anterior superior spinous process will touch the top of the great trochanter, or nearly so; so that the base of the ilio-femoral triangle is nearly, if not quite, obliterated. The top of the great trochanter will also be found

to be from half an inch to an inch above Nélaton's line. These measurements, together with the other symptoms, will at once decide the case. When the child is a little older, 4 or 5 years of age, the consecutive deformities, especially conspicuous when both hip-joints are affected, still further aid the diagnosis. It has been stated that the head of the femur can be felt on the dorsum ilii rolling under the fingers when pressure is made, but this is not so according to my experience, especially in young children, when I have frequently failed to feel any movement of the head of the femur. But a little later—from 5 to 10 years of age—it can generally be felt; yet very indistinctly as compared with a traumatic dislocation, or a spontaneous dislocation, such as occasionally occurs during the progress of fever. When we remember that, in the congenital form, the head of the femur is still retained within the capsular ligament, which gradually becomes extremely thickened and dense in structure, and also that the head of the bone is always diminished in size and somewhat altered in shape, we should not expect to detect any rolling movement of the head of the bone when the limb is rotated, at all corresponding to that felt in the other forms of dislocation mentioned.

A certain amount of approximation of the knees, and obliquity of the thigh-bones inwards, has been mentioned amongst the diagnostic symptoms, but I have never observed this in any case that has fallen under my observation.

As age advances—say from 10 to 20—all the diagnostic symptoms become exaggerated, and, as the result of walking with the natural equilibrium of the body so much disturbed by the malposition of the hip-joints, especially in a case of so-called double dislocation, the trochanters rise higher above the level of the anterior superior spinous process; the pelvis is thrown forwards, causing excessive lordosis in the lumbar region, and prominence of the stomach in front, the spinal muscles being thrown into strong action in the effort to maintain the equilibrium of the body. The alterations in the general proportions of the body, especially the comparative shortness of the legs as compared with the trunk, also become conspicuous. When one hip-joint only is affected, tilting of the pelvis and lateral curvature of the spine are certain to result from the inequality in the length of the legs.—*British Medical Journal*, Nov. 7, 1885, p. 859.

49.—ON EXCISION OF THE KNEE-JOINT.

By A. F. MCGILL, F.R.C.S., Surgeon to Leeds General Infirmary. [The following remarks upon the mortality from excision of the knee, and the method of performing the operation, were made by Mr. McGill in the course of a clinical lecture.]

It is usual to consider excision of the knee from two points of

view—the mortality which accompanies it, and the utility of the resulting limb. Though at one time it was seriously argued that the limb with an excised knee was in no way superior to an artificial or peg-leg fitted on to the stump of an amputated thigh, it is now unnecessary to discuss this subject. We have all had many opportunities of seeing patients with excised knees walking with a scarcely perceptible limp, the necessary ankylosis being the only respect in which the one leg was inferior to the other. We may therefore dismiss this part of the subject, and proceed to consider the mortality and danger of the operation. Statistics show that in its early days the death-rate after excision of the knee was far from satisfactory. Swain in 1869 collected particulars of 472 cases, and found that 116 died, a death-rate of 24·5 per cent. But it must be recollected that at that time all operative results were inferior to those met with at the present time. Since the new Leeds Infirmary was opened, in 1869, the operation has been performed 116 times. In the old Infirmary ten cases only are recorded, with one death; but of the remaining nine two were amputations. Of the 116 cases eight died, a mortality of 6·9 per cent. This result is good, but if we take the last five years from the beginning of 1881 to the present time, we find there have been sixty-three cases, with only two deaths, a mortality of only 3 per cent. One of the fatal cases occurred in a man who died at the end of a month from acute inflammation supervening in lungs already diseased, and containing small cavities of long standing; in this case the excision wound was almost healed. The other died of septicæmia, but the case was not an ordinary one, as the operation was performed for compound fracture into the knee-joint some time after the receipt of the injury; his general condition was unsatisfactory when the operation was performed; he did not improve after it; amputation was then resorted to, and death was the result. It might fairly be argued that in neither of these cases could death be fairly attributed to the operation, and we should then have sixty-one successive successful cases. But reckoning the mortality at 3 per cent., the result must be considered extremely satisfactory. It is only fair, however, to add that 10 per cent. of the cases failed as far as preservation of the limb was concerned; the limbs in these were amputated; but, with the exception of the case mentioned above, the second operation was successful in every instance.

[After describing the various methods which had been adopted in the performance of the operation, the lecturer proceeded to summarise the various steps of the operation, as follows.]

1. The incision is best made in a straight line from the posterior border of one condyle to a corresponding point on the opposite side over the centre of the patella, the joint being opened by dividing the bone with the saw, and removing the two portions separately.

The advantages of this incision are that it enables the superior cul-de-sac of the synovial cavity to be thoroughly explored, that it facilitates the firm fixture of the limb on a splint, and that it makes the skin wound as small as possible. 2. The section of the bones must be made so that they will accurately fit when brought into apposition. This is best done by holding first the thigh and then the leg in a vertical position, exactly at right angles to the operation table, the saw being applied horizontally. It is found much easier to make the sections in this position than to hold the limb obliquely and trust to the eye for direction. 3. The whole of the diseased structures must be removed—all diseased pulpy synovial membrane by excision or scraping, all granulation tissue in sinuses by scraping, and all diseased bone with the gouge. It is specially needful that the superior cul-de-sac of the synovial pouch be thoroughly explored, as if this is not done secondary abscesses not unfrequently form in this position and give rise to much trouble. The thorough performance of this step of the operation is absolutely necessary if union by the first intention is desired. 4. The femur and tibia are sutured together, holes are made with a gimlet on each side of both bones, and a double thickness of No. 3 catgut passed through them and firmly tied. The catgut answers as well as wire, and does not require to be removed. 5. A drainage-tube is inserted on each side of the wound and brought out at the angles of the wound, or, if necessary, at more dependant openings specially made. Sutures are inserted to bring the edges of the skin wound into apposition, and the wound, being thoroughly irrigated with a .05 per cent. solution of corrosive sublimate, is dressed with dry antiseptic dressing. In the Leeds Infirmary salicylic silk or cotton-wool, and a large amount of iodoform, are generally adopted for this purpose.

The operation being thus completed, it is necessary to apply a splint, so that perfect rest may be ensured. Large numbers of appliances have been used for this purpose, many of them—as, for example, Fergusson's excision splint—being heavy and unwieldy. It is well to remember that it is always better to apply a splint to a limb than to apply the limb to a splint. In other words, the lighter the splint the better. In these cases nothing answers better than a piece of Gooch's splinting, cut out to fit the limb, and extending from the trochanter to the ankle. This, firmly applied with strapping reaching down the thigh and up the leg to within an inch and a half or two inches of the wound, keeps the joint at perfect rest, and enables the patient to be moved, or, after a few days, to move himself about in bed, without difficulty or discomfort. A large pad of antiseptic dressing being applied over all, the first dressing is complete. The question when the first dressing should take place was next discussed. Should the limb be disturbed on the fourth or fifth day, and the dressings changed, and

the drainage-tubes removed? or is it better to delay the first dressing for three weeks or a month? Cases were quoted showing that either proceeding may yield satisfactory results. Two patients lately under treatment had not been dressed for more than three weeks, and their wounds were entirely healed when the next dressing was applied three weeks later. In two other cases a thorough change, necessitated by the copiousness of the discharges, was made on the fourth day; in these cases also complete union was established without further change. We must be guided by the amount of discharge and the condition of the temperature, but in the majority of cases one early dressing seems to be advantageous, making the patient more comfortable, and diminishing the risk of septic infection of the wound.

As regards the treatment of any particular case, there are four courses open to us—non-operative treatment, erosion or arthrectomy, excision, and amputation. Amputation is required when the general condition of the patient is such as to render any minor proceeding inadmissible, when the patient is suffering from some organic lesion distinct from the local affection, or when, owing to the local affection, the temperature is much elevated. We are also occasionally driven to amputation in cases where there is extensive disease of the bones accompanying the joint mischief, or when the tibia is so far dislocated as to render it impossible to restore the limb to a straight position. The question between excision and time can only be answered by considering the various peculiarities of each individual case. It is generally stated that excision is a procedure more adapted for poor hospital patients than their richer brethren. It is no doubt true that many cases of joint disease, if favourably situated, will, after months, or more frequently years, recover with a stiff limb, but even then they are no better off than the patient with the excised joint, who has recovered in a comparatively short time. In all cases, when, after a few months' treatment by the usual methods, no signs of amendment appear, operation should be recommended. The only question is whether the operation should be excision or erosion. Experience of the last operation on a large scale is as yet wanting, but it seems not improbable that in a few years many cases which are now excised will be erased, and that patients thus treated will recover with a slightly movable joint. Fortunately, the first step of the operation is the same in both cases, consequently the surgeon need not determine which procedure he will adopt until he has carefully examined the condition of the various tissues which form the joint. Should the disease be extensive, he will excise; should it be more limited and chiefly confined to the synovial membrane, he will erase. In this latter case the two fragments of the patella must be united by suture. — *Lancet*, Jan. 2, 1886, p. 2.

50.—ON ASTRAGALOID OSTEOTOMY FOR FLAT FOOT.

By WILLIAM STOKES, F.R.C.S., Dublin, Professor of Surgery in the Royal College of Surgeons of Ireland.

For some time it has been a matter of doubt to me as to whether the generally held theories as to the etiology of pes planus or flat-foot were such as should be unhesitatingly accepted. These have been two-fold—one based on an alleged relaxation of certain ligamentous structures, notably the calcaneo-scaphoid ligament; and the other that it is largely, in some cases entirely, due to a paralytic condition of certain muscles connected with the ankle and foot, more especially the tibialis anticus.

My doubts as regards the value to be placed on the first of these theories have arisen mainly from there having been up to this no satisfactory demonstration of the existence of ligamentous relaxation; from observing that in a large proportion of the cases that have fallen under my observation the deformity occurred, not in delicate, weakly, anæmic subjects, but in young persons who were strong, healthy, and well nourished; and from noticing how uniformly unsuccessful the attempts are to permanently remedy the deformity by any of the routine lines of practice, such as pushing up the arch of the foot and keeping it in that position by any of the various mechanical adjustments designed for this purpose.

In these cases, too, there has been an entire absence of any evidence of local paralysis.

These facts have naturally shaken my belief in the views as to the etiology of the conditions which are usually taught, accepted, and acted on by surgeons.

However, not having until recently an opportunity of either verifying or disproving these doctrines by means either of dissection or inspection in pathological museums of examples of the deformity—for, strange to say, although it is a defect of such common occurrence, the pathological museums are singularly deficient in examples of it—I consequently was unable to arrive at any definite conclusion as to what should or should not be accepted as regards the causation and pathology of the deformity.

My attention was, comparatively recently, directed again to the subject on reading Professor Ogston's paper on flat-foot—one written with that ability and originality which characterise his contributions and make them so grateful to the surgical student.

In this communication he advocates a complete revolution in the previously accepted methods of dealing with the deformity,—viz., cutting down on the astragalo-scaphoid articulation, removing a thin slice from the surfaces of these bones where they articulate with each other, restoring the arch of the foot, and fixing the two bones together with fine ivory pegs, which are left in the wound. This procedure has been attended, it is stated, with eminently

satisfactory results. There are, however, two features in it which appear to me to detract somewhat from its merit—one, that the operation is so complicated and difficult; and another, and more important, is that one of the articulations in the tarsus is necessarily completely obliterated, an object of the operation being to get, after reducing the deformity, ankylosis of the astragalo-scaphoid joint.

In reference to the etiology of the defect. As regards the opinion emphasised by Prof. Sayre, and, I am informed, endorsed by Mr. Barwell, in reference to a paralytic condition of certain muscles, notably the tibialis anticus, I would say that, without denying the possibility in certain cases of this condition aiding in or being the cause of the production of the deformity, it must, I think, be very rarely a determining factor. I have never satisfied myself of its existence. A twofold cause is mentioned by the late Prof. Hueter—one a hyperpronation of the foot in infancy when, namely, the child begins to walk, coupled with and possibly caused by ligamentous relaxation. This latter view is combated by Von Meyer, who denies the relaxation of the calcaneo-scaphoid ligament, and attributes the deformity to a displacement of the astragalus due to an excess of its natural movement. Due weight must be attached to his opinion on the subject. At the International Medical Congress at Copenhagen the opinions of several authorities were distinctly in favour of the view—contrary to what is generally held and taught—that to original osseous malformation, rather than to muscular or ligamentous abnormality, must we look for explanation of these deformities. I then was strongly opposed to this view, but from what I then heard and have since ascertained, I should not now express myself quite so decidedly as I did.

It was, in truth, with feelings of no ordinary satisfaction that I obtained the opportunity of inspecting this singularly interesting specimen (exhibited to the meeting)—the only one of the kind, so far as I am aware, in this country, and which verifies to so great an extent the views I have held so long as to the etiology of the defect. Professor Cunningham, too, who has carefully examined this specimen, agrees with me in the propriety of dismissing the idea that ligamentous relaxation would alone account for the changes here present, and the same remark may be made in reference to paralysis being an etiological factor. The principal osseous abnormalities are those observed in the astragalus and os calcis. In the former of these it may be observed that the head of the bone is directed downwards instead of forwards, and its articular surface in contact, not with the scaphoid, but inferior calcaneo-scaphoid ligament; that on the upper and now anterior portion of the neck of the bone is an abnormal facet articulating with a somewhat hypertrophied scaphoid; that the distance between the posterior margin of the scaphoid and anterior edge of

sustentaculum tali is nearly double what it is in the normal condition of things; that the sustentaculum tali, instead of forming a nearly horizontal base of support for the astragalus head, is directed obliquely downwards and forwards, the groove immediately posterior to it, as pointed out to me by Professor Cunningham, looking backwards instead of downwards. The head of the astragalus is enlarged, and the neck of the bone is lengthened on its upper or now anterior surface, whereas posteriorly its length is normal or nearly so. The body of the bone is apparently unaltered, its trochlear surface maintaining its normal relations.

My contention is that we must look to something else besides relaxed ligaments and paralysed muscles as causing these remarkable changes, though I do not, of course, deny that they may not at times be present.

Having regard to the osseous deformities in this remarkable case, as well as the very similar state of things found in Mr. Symington's, it is not surprising that the routine line of practice already alluded to should, as a rule, prove so ineffective. This is especially obvious in those instances constituting, I believe, the majority of those cases in which there is, as may be here observed, an abnormal projecting angle or ridge separating the articular surface into two portions—one articulating with the scaphoid, and the other with the inferior calcaneo-scaphoid ligament. This projecting ridge forms an effectual barrier in preventing a restoration of the arch by any pressure made from without.

Case.—In April, 1884, a youth, æt. 14 years, came under my care in the Richmond Hospital, in one of whose feet all the physical characters of flat-foot were well marked. The case appeared to me to be in every way suitable for operative interference, the condition of things causing much trouble to the patient, and the case being one in which the arch of the foot could not be restored by any reasonable force or pressure from without. I made an incision (under a carbolic spray strongly directed on the part) an inch and a half in length along the inner edge of the foot, the centre of which incision was the prominence caused by the head of the astragalus, though of this, I confess, I was not quite certain, until I exposed it, as to whether, namely, the tumour was formed by the head of the astragalus, or tuberosity of the scaphoid. In some cases I have little doubt it is caused by the latter.

At the centre of the incision I made along the inner edge of the foot I made another three-quarters of an inch in length, and at right angles to the first, and a little behind the situation of Chopart's joint, and dissected back the two small triangular flaps of skin for about half an inch. My object was, if possible, not to open the joint, but to remove a wedge-shaped piece of the enlarged head of the astragalus, which wedge should have its base below an apex above, and which, if removed, would enable the depressed

portion of the tarsus to be elevated and the arch restored. On taking out the wedge, which I did with an osteotome, I found that it was impossible to avoid implicating Chopart's joint, and accordingly a portion of bone was removed, which included a part of the abnormal facet which articulated with the scaphoid. I found then that by adducting and supinating the foot the arch was perfectly restored. On the wound being healed, the method I adopted for keeping the foot in a position of adduction was a simple one, and one to be recommended in these cases—namely, the application of a Dupuytren's splint applied as in a case of Pott's fracture of the fibula. In this case it was kept on for a fortnight, when a gypsum bandage was substituted for it. The result was most satisfactory, and an examination of the case, made in the sixth month after the operation, was such as to make me look forward with confidence to the good result being permanent, the patient informing me—and his statement was endorsed by his friends—that he was able to walk, run, and play about as well as any other healthy boy of his own age.—*Annals of Surgery*, Oct. 1885, p. 279.

51.—ON OSTEOTOMY WITH CHAIN-SAW FOR TALIPES-EQUINO-VARUS OR VALGUS.

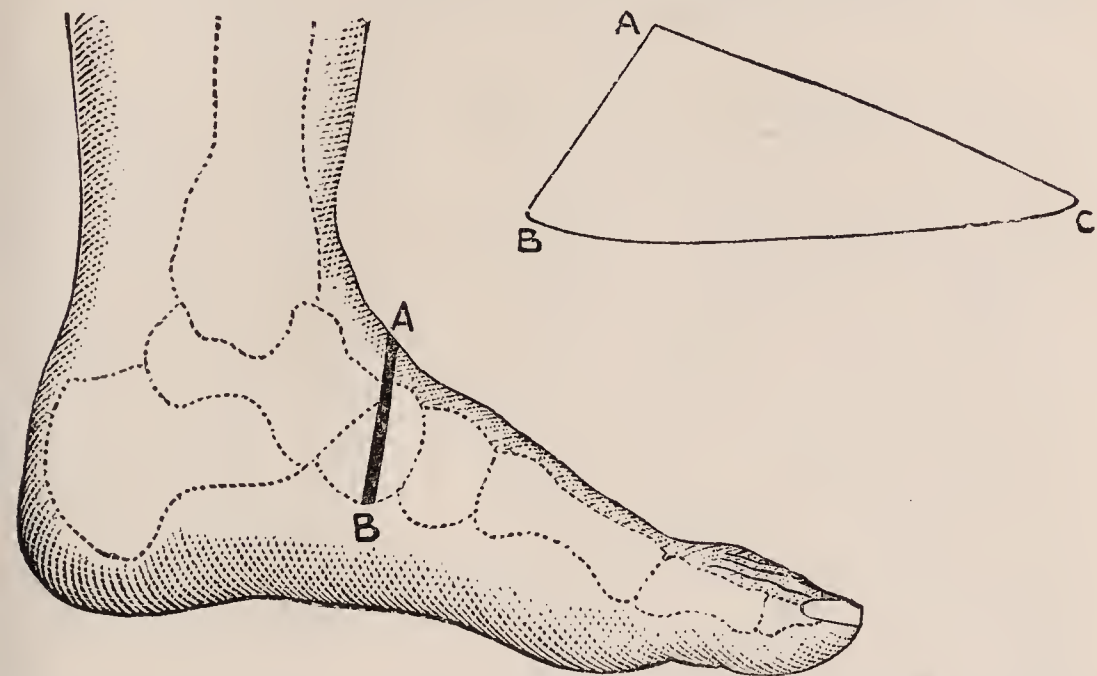
By HORATIO P. SYMONDS, Surgeon to Radcliffe Infirmary, Oxford.

For some time, having noticed how exceedingly prolonged was the treatment of even a simple case of talipes—and I may add how bad sometimes was the result,—it occurred to me that if we were to divide the bones in the same manner in which we divide the tendons, a far better result might be obtained; better because quicker, since many cases fail on account of the patient's lack of confidence through seeing improvement taking place so slowly. I may state that I have performed the wedge-shaped removal and pegging, as advised by Dove and Ogston, but did not find the result sufficiently satisfactory. The operation I perform in all severe cases of talipes is to pass a chain-saw round the tarsus, in front of the astragalus. Taking the tarsus as a triangle, pass a metal-handled tenotomy knife through the sole of the foot in front of the os calcis, B C, commencing from the inner side (see Fig. 1). Then let the chain follow the knife through the sole, and repeat the proceeding from the outside to the dorsum of the foot (A). Complete the skin incision (A B), and then cross the chain so that it can gradually work its way outwards. The inner wound is sewn up, no drainage being necessary. The foot is then fixed on to a Volkmann's splint for a fortnight, at the end of which time, after manipulating it into a good position, it is fixed in plaster-of-Paris for three months (see Fig. 2). I recently saw a case in which I had performed this operation eight months previously, and the patient was then walking without apparatus of any kind, and the foot, which before the

operation had been very markedly deformed, was restored to its normal position. I need hardly say that the operation must be

FIG. 2.

FIG. 1.



done with strict Listerian antiseptics, particular attention being paid to the condition of the saw.—*Lancet*, Jan. 2, 1886, p. 15.

52.—ON A SIMPLE METHOD OF TREATING SPURIOUS VALGUS IN THE FEMALE.

By F. KING GREEN, F.R.C.S., Assistant-Surgeon to the Royal United Bath Hospital.

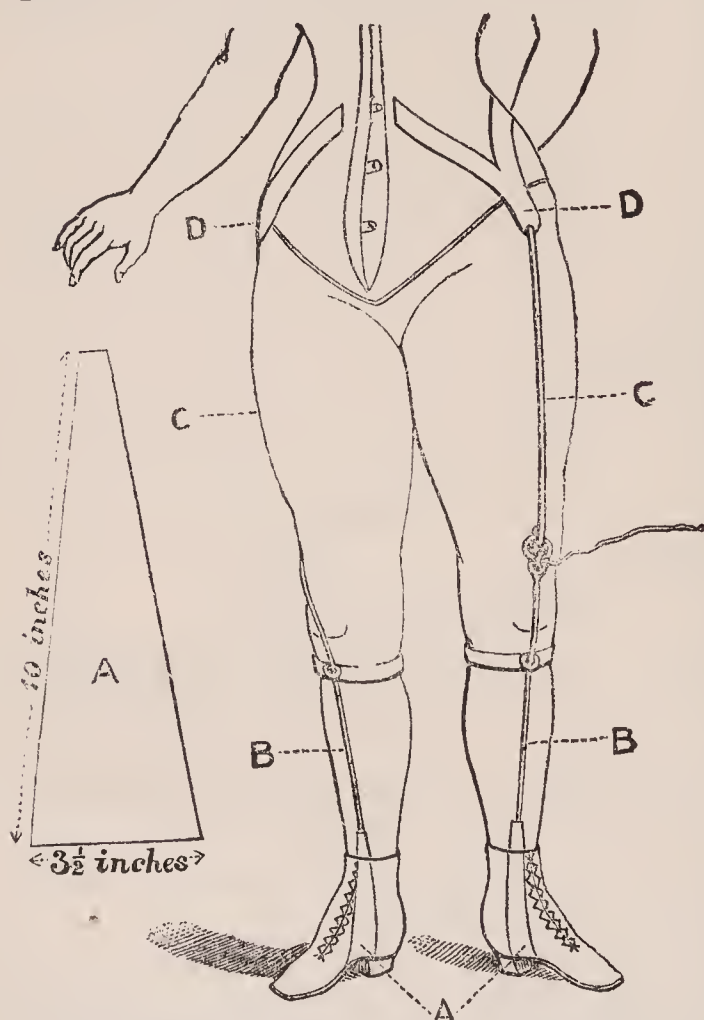
At the instance of my friend, Mr. Waldemar Roeckel, of the National Orthopædic Hospital, I am induced to bring to the notice of the profession what I think I may describe as a simple method of treating spurious talipes valgus, or flatfoot, in the female.

In the treatment of this affection, both in hospital and private practice, I have hitherto been in the habit of using the well known horsehair pad, and, this failing, have sometimes ordered the instep of the shoe to be strengthened, and the sole to be thickened at this part. Apart from other objections attending these methods of treatment, I have not unfrequently found that the pressure induced in either method on the tender head of the astragalus has been a bar to its further use. In a case recently under treatment I was, on account of this symptom, led to adopt the apparatus devised by Mr. Barwell, and highly lauded by Professor Sayre, an apparatus which is dependent in a great measure on the careful application of a large amount of plaster. This treatment, again, I found open to the objections that the plaster required frequent readjustment; the patient had to sleep in it every night, and

objected to the mess and discomfort which it caused during the hot weather. It then occurred to me that I might throw the weight of the body on to the hips at the same time that I gave an equable and elastic support to the instep. The apparatus (for a

description of which see annexed figure) borrows its essential principle from that described by Mr. Barwell.

It will be seen that on retiring to rest at night the whole apparatus can be removed by one pull at the slip-knot above the knee, when the leather cord comes off with the boot or shoe, and the indiarubber cord remains attached to the corset. In like manner the boots can be changed with similar ease at any time. Again, the amount of elastic support to the instep can be regulated to a nicety by the patient herself, who can loosen or tighten the slip-knot at pleasure. I have not had a favourable opportunity of trying a similar apparatus in the male sex, but there would, I should think, be very little difficulty. Owing to the narrowness of the hips, a corset like the female corset could not be worn, but a broad belt suspended from the shoulders by braces would in all probability be a good substitute.



A, A triangular-shaped piece of stout jean ten inches by three inches and a half attached by its base *within* the shoe to the outer side, about half an inch above the junction of sole with outside leather. The sole of the foot rests upon this piece of jean, which, when tension is made upon it by the cord above, gives the requisite support to the arch of the foot. B, An extra stout brown leather shoe-lace firmly bound to the apex of the triangular piece of jean below, and passed through a ring (the outstanding ring of a jack-rod) which projects from the garter, and still higher through another ring, where it is secured by a slip-knot. C, A piece of indiarubber cord one-third of an inch thick, to the lower end of which a small metal ring is fixed; this cord is firmly bound above to the lower end of D. D, A Y-shaped piece of strong webbing attached by strong sewing to the front and back of the corset (as shown in the drawing), to the lower end of which the indiarubber cord is bound.

53.—ON OBSCURE SPRAINS OF THE ELBOW OCCURRING IN YOUNG CHILDREN.

By J. HUTCHINSON, Jun., F.R.C.S., Surgical Registrar to the London Hospital.

This subject has attracted no little attention, Goyrand and Guersant in France, and Hodges in America, having especially written on it. The latest notice of it that I am acquainted with occurs in Mr. C. Heath's *Minor Surgery* (1883). The symptoms are pain and inability to supinate the hand, which is strongly pronated, the arm is semiflexed, and the deformity suddenly disappears upon the hand being steadily supinated by the surgeon, or frequently whilst he is examining the case. Mr. M'Nab (quoted by Mr. Heath) regards the injury as a dislocation of the lower end of the radius from the ulna. M. Goyrand described the same injury to the Surgical Society of Paris in 1861, and maintained that it consisted in a displacement of the inter-articular fibro-cartilage of the wrist, in front of the carpal extremity of the ulna. Other French surgeons, however, have believed that the dislocation is at the upper extremity of the radius, and in this Dr. Hodges, of Boston, agrees. The author has met with several cases since his attention was called to the subject, and in some of these the injury, so far as could be judged, was at the wrist, whilst in others it was near the elbow. The treatment is to grasp and supinate the hand steadily, when the parts will resume their natural position.

With all deference to so distinguished an authority, I venture to differ from the foregoing in several particulars. First, I believe that the lesion, in the great majority, if not all cases, consists in a slipping of the radius out of the grasp of the orbicular ligament, which rests in the angle between it and the capitellum. Fig. 1 (not reproduced) shows this, and represents the result of one out of many experiments on the dead subject. The accident is commonly produced by a dragging or other force applied to the hand in a condition of supination. *A priori*, then, we should expect a downward displacement of the radius alone, for it need not be pointed out how little the ulna is concerned under such conditions. In those cases in which the force has been great it is probable that there is also a rupture of the thin part of the capsule connecting the orbicular ligament with the neck of the radius.

[Tillaux, who believes the injury to consist in slipping of the head of the ulna over the triangular ligament, and maintains that the accident is produced by sharply raising the child by the arm with the hand fully pronated, is quoted by Mr. Hutchinson, who proceeds as follows.]

Who would think of raising a child by its fully pronated hand? This movement is a means of torture almost confined to school-boys, at an age when the ligaments are much stronger. I have

failed to produce any lesion in wrist or elbow on subjects older than 5 or 6 years by either pronation or supination combined with traction. But if the body of an infant or young child be taken and forcible traction applied to one hand during supination (it must be remembered that the force is great in the living subject—since frequently the child is lifted up or swung round by the person producing the accident), a peculiar snap will be heard. If the forearm is then dissected it will be found that the orbicular ligament has slipped up, and that this, with or without rupture of the sub-orbicular membrane (if such a term may be allowed), is the sole lesion produced. If the elbow is now flexed and the hand pronated, the ligament again slips down into its right place, and again a snapping sound is heard. The experiment may be repeated several times, for by slight traction and supination the dislocation can easily be reproduced.

It may be urged that if the radius is displaced downwards at the elbow joint it must necessarily be displaced to the same extent at the wrist. But the term displacement is too high-sounding. It simply amounts to the depth of the cup (trifling in children), for the radius remains in contact with the capitellum, by the border of its cup. This, it will be admitted, can make no obvious difference to the relation of the ulna and radius below. If the force applied be extreme the liberated radial head will be driven forwards, and Mr. Holmes (*Surgical Diseases of Children*) figures such a displacement (compound in his case), and states that it is frequent in children.

But the essential feature of these far more common sprains in early life is the upward displacement of the orbicular ligament, to which I have hitherto found no allusion.

It is possible also that in a few cases the oblique ligament may be torn; but I could only produce this after very great traction; the interosseous membrane running downwards from radius to ulna will obviously be relaxed. There seems no doubt that considerable pain is produced by these sprains. The child, when brought, is often said to have "cried ever since we lifted it up," and the analogy to the interlocking of a semilunar cartilage in the knee might be suggested. But it probably does not hold, since the orbicular ligament is not so definitely interlocked, it is much softer, and, as already pointed out, the interval between the two bones is usually very slight. If, however, the radius be somewhat dislocated forwards, the radial nerve may be stretched over it during extension, and this might possibly account for some of the pain.

The cases are of every-day occurrence at a large hospital, and those I have seen were hardly so fully pronated as the descriptions quoted would lead one to expect. The child seems naturally to pronate the hand after its forced extension and supination, but, finding that something is wrong, keeps it at rest and as though helpless.

As regards treatment. The elbow should be flexed and then gently but fully pronated; if a click is audible, one may feel certain that the orbicular ligament has descended, and that nothing further is necessary than rest with perhaps cold applications.

In concluding this account of the peculiar displacement of the orbicular ligament, I do not suppose for a moment that such a simple explanation of these common but perplexing cases of elbow-sprain in young children has not occurred to many observers. But it was owing to the uncertain statements found in the chief surgical works, and to my own doubt in dealing with these cases, that I thought it worth while to see if experiments on the dead subject would throw light on them, and to record the results in this paper.—*Annals of Surgery*, Aug. 1885, p. 91.

54.—ON CHRONIC SPRAIN.

By C. W. MANSELL MOULLIN, F.R.C.S., Assistant Surgeon to the London Hospital.

[This paper opens with the narrative of a characteristic example of the condition of chronic sprain, a condition, the author says, frequently met with in actual practice, but not hitherto regarded as a distinct lesion. The example given as a type occurred in the person of a young girl aged 14 years, employed as a nursemaid, having to carry about a heavy child. The patient presented herself complaining of partial paralysis of the right arm, with occasional severe pain. There was no history of injury, but the arm was said to have given way on various occasions. There was great wasting of the trapezius and deltoid muscles, and some smallness of the other muscles in the neighbourhood of the shoulder joint; all movements were limited and painful; there was a large amount of thickening and tenderness all round the acromio-clavicular joint, and the bones were so loosely connected that they could be easily moved one after the other. When the scapula was held firmly in position, the movements could be as well and as easily executed as those of the opposite side, and it was at once seen that the wasting was only apparent. The characteristic features were the weak muscular development, the imperfection in the shape of the articular ends, and the loose, yielding condition of the ligaments. So long as no extra strain fell on the articulation, the ligament and muscles were sufficient to maintain the surfaces in contact, a little extra work tiring out the muscles allowed the strain to fall upon the ligaments until they gradually stretched more and more, so that the end of one bone could slip backwards and forwards over the other. Other joints, the sterno-clavicular and the temporo-maxillary, are said to suffer from this condition. Reference is made to the observations of Hamilton, Astley-Cooper, and Malgaigne, after which Mr. Mansell Moullin says:—]

Nearly all the cases that came under my own immediate notice, and the majority of those I find already described, were girls, and at that particular period when not only is growth often exceedingly rapid, but when, too, there are other serious calls upon the general vigour of the body. The right side of the body was much more commonly involved than the left, though the latter was rarely quite exempt; they had in the majority of instances recently, and when quite unfitted for it, suddenly undertaken some too severe muscular work; naturally this fell more on the right side than on the left, and so the pain and discomfort were greater in the former.

The secret of it all is, that the muscles are too feeble to give the support they ought. The joints are not properly developed, and the ligaments are not strong enough, because they have not been properly exercised. The muscles are unaccustomed to any degree of work. When a little extra labour has to be done (and it is extraordinary how little is required in cases such as these), they soon become fatigued; the joints lose their support; and the already feeble ligaments yield slowly and steadily, with a very considerable amount of pain, as ligaments always will yield when they are exposed to any continual strain. It cannot be too clearly laid down that not only do the joints depend for their perfection on the development of the muscles, but that at any moment the muscles that surround and act on a joint are as essential to its security as the ligaments, perhaps more so. If they yield, the ligaments will never hold for long.

This subject derives additional importance from the fact that flat-foot, knock-knee, and lateral curvature of the spine are, in the great majority of instances, induced in exactly the same manner. They occur in the same class of patients, at the same age, under the same conditions, and are due to the same causes. I have even seen instances in which, so to speak, acute flat-foot and acute lateral curvature of the spine (of course, only acute relatively to the ordinary forms) have occurred as a direct consequence of a single strain supervening on this general condition, just as, in one of the cases I described at first, attempting to lift too heavy a weight caused the sterno-clavicular articulation of that side to yield upwards. In the one instance a violent blow disabled, for a time, the peroneus longus of one foot; the antero-posterior arch lost the main tie that holds down its front pillar, and, the strain falling on the ligaments, they gave way, allowing the arch to drop, with long-continued and severe pain. In the other, a boy who was swinging by his hands in the gymnasium, suddenly experienced acute pain in the suprapubic region, running round both sides of the body, evidently in the course of the upper branches of the lumbar plexus. In a very few weeks, lateral curvature of the spine showed itself, and progressed with such rapidity that it was evident

that the vertebræ had, for the time, quite lost their support. As soon as the real cause was recognised, recovery was rapid in both cases.

With regard to the question of treatment, there is one point to which it is worth while to call attention. I have already mentioned in the first case I recorded that, though the atrophy of the muscles was to a great extent deceptive, owing to the malposition of the scapula, it was not at all false: they had, when compared with those of the opposite side, distinctly lost size and tone. The extensor muscles only were involved, hence clearly it did not arise from mere disease of the joint; the only explanation would seem to be that it was the direct result of the repeated slight attacks of traumatic synovitis consequent on the continued strain to which the joint had been subjected. This would accord well with the swelling and tenderness that plainly existed round the joint on the first occasion on which I saw the patient. However this may be, there can be no question that the wasting of muscles, no matter how it arises, is a serious complication to a condition of which muscular debility is the main feature. It tends to perpetuate the trouble, and aggravate it in every way. Fortunately, in galvanism, systematically and regularly applied, there is a powerful ally. Meantime, by means of rest, counter-irritation, pressure, and the use of absorbents, the inflammation can be reduced and the effusion absorbed; and then attempts must be made to restore the muscular system to its normal strength by all the means in our power; orderly and well regulated exercise, arranged with a view to definite ends, never carried too far, either in extent or time; massage, to improve the circulation; galvanism, to restore the tone; cold bathing, shampooing, and, above all, tonics, fresh air, and good food. Like most other things, it is easier to prevent than to cure; and, provided due attention be paid and a little watchfulness exercised, there need be no apprehension of this condition supervening, even if growth be as rapid as it often is at the time of puberty. Regular and systematic exercise is all that is required, taking care to avoid sudden violent strains and over-fatigue of any special set of muscles.—*British Medical Journal*, Nov. 21, 1885, p. 959.

55.—THE PROMOTION OF UNION BY FIRST INTENTION.

By WILLIAM BERRY, M.R.C.S. Eng., L.R.C.P. & S. Edin., Hon. Medical Officer, Royal Albert Edward Infirmary, Wigan.

When we have a wound to deal with, it is necessary to cleanse it from all dirt or foreign bodies; the raw surfaces should be brought together as neatly as possible, and coaptation maintained (if necessary) by sutures. If the wound be a large one, and there is a likelihood of much oozing, then a drainage tube should be inserted in the most dependent part, and this may be removed

with the first dressing, if it has accomplished the purpose for which it was intended; the wound should next be covered by a neat covering of absorbent wool between two layers of gauze. We may if we choose impregnate the wool with antiseptics, such as iodoform, salicylic, boracic, or carbolic acid, eucalyptus oil, or terebene. Every part of the wound should be well covered for some little distance all round, so that the discharges may be all soaked into the dressings. A roller should next be applied with equable and firm pressure, sufficient pressure not only to keep on the dressings, but also to afford ample support to both sides of the wound.

In seeking to avoid suppuration, and promote union by the first intention, although cleanliness is essential, it is not a good thing to drench wounds with water. "Drenching wounds with water during an operation, or after an accident, and washing them with it in subsequent dressings, are mistakes. Water favours decomposition, which is the enemy of healing action. In the case of an incised wound which has only partially healed, let anyone try the experiment of covering one part of the recent cicatrix with dry lint, and the other with water dressing. As a rule, liable to very rare exceptions, consolidation will be found to take place under the dry, and suppuration under the wet part." A dressing of absorbent wool like we have mentioned should not be disturbed unless it becomes saturated, or the temperature rises, and thus we gain complete rest, which is our first requirement in wound treatment. Writing of complete rest, Mr. Gamgee says:—"To meddle is to irritate, and irritation is opposed to healthy nutrition, which is essential to the safe, painless, and rapid repair of wounded structures, so powerfully promoted by infrequent dressing and compression." And again, Mr. Barker, of University College Hospital, London, says:—"In applying our first dressing we should use as much care as if it were going to be left on for weeks; it would be so much better. The wound thus at rest would induce to pour out only as much plastic material as would be necessary for union, and could be rapidly organized, and would not be excited over and over again at each dressing to give out more fluid material in the shape of serum or pus." Mr. Barker reports four cases of major amputations in which he has used the dry absorbent wool dressing, and says:—"Generalising on these four cases, the first point that strikes us is the large amount of complete rest secured to the wound and to the patient; far larger, I must admit, and more perfect, than I have ever attained by any other method."

Our second requisite—namely, *position and drainage*.—To get union early we must have the limb so placed that any fluids which may accumulate do not lodge, but have means of escape; hence the limb must be so placed and drainage tubes inserted if necessary to

attain this object. In using drainage tubes, however, we must take care to remove them as soon as their requirement ceases, or we may set up more mischief and cause by irritation increased excretion, and thus augment the discharges. As has been previously mentioned in this paper, pressure is necessary to promote healing; it may, however, be said that pressure, like drainage, if not properly applied, may delay the process we wish to assist.

Of this, our third requisite, *pressure* should be firm and equable. Mr. Sampson Gamgee in a clinical lecture says:—"In wound treatment pressure is a most powerful and beneficial agency. It favours union by maintaining accurate coaptation, and prevents extravasation of blood and its products. When such extravasation has occurred, pressure is the quickest, the least painful, and the most successful agency in promoting absorption."—*Provincial Med. Journal*, March, 1886, p. 100.

ORGANS OF CIRCULATION.

56.—ON THE TREATMENT OF POPLITEAL ANEURISM BY THE "OLD" OPERATION.

By THOMAS ANNANDALE, F.R.S.E., Regius Professor of Clinical Surgery in the University of Edinburgh.

[After reference to Erichsen's description of the great dangers of the operation of opening the sac of the aneurism, and that writer's declared preference for amputation in cases not suitable for treatment by the more ordinary methods, Mr. Annandale proceeds,]

The "old" operation at the present time is a very different proceeding, and, in my experience of it, which has not been small, I have failed to meet with those difficulties so graphically related by Mr. Erichsen. With the antiseptic ligature and dressing, I now look upon this operation as a very simple proceeding in properly selected cases, provided you can stay the circulation in the sac during the operation, and you can always do this in a case of popliteal aneurism.

In order to explain my method of operating, I have had this diagrammatic sketch prepared. It is supposed to represent the cavity of the aneurismal sac after it has been laid open and all the clots removed. *a* is the opening of communication with the artery, into which a bougie, *b*, has been inserted, and passed along the canal of the vessel upon its cardiac aspect. *c* and *d* are the two small incisions made through the wall of the sac, immediately above the opening, and the aneurism needle, *e*, is shown after its point has been passed through these incisions and under the artery, with the contained bougie. By means of the aneurism needle the ligature is drawn through and tied round the vessel upon the

bougie, the latter being gradually withdrawn as the ligature is tightened. Should there be only one opening, and this is the case in a very large majority of instances, the same proceeding is carried out upon the distal end of the artery, the bougie being inserted into the opening again and passed downwards. If two openings exist, they must be treated separately. The employment of the bougie was first suggested to me several years ago by Sir Joseph Lister, when I was operating upon a case of femoral aneurism.



I will now relate a case in illustration. U. N., æt. 42, was sent to me in August of this year by Dr. Hern, of Darlington, on account of a popliteal aneurism affecting the right leg. The patient had suffered from obscure pains, attributed to rheumatism, in this leg for one year and three months before his admission into my wards, but he only noticed a swelling in the popliteal region of this same leg about three months ago. Since first observed, the swelling, which pulsated strongly, has rapidly increased in size.

On examination, his condition of health was not very favourable. There was a slight systolic murmur over the mitral area, and the radial and temporal arteries were tortuous and affected with atheroma. The other organs were healthy. In the right popliteal space there was a large pulsating and expansile tumour, which filled the whole space, bulging out on each lateral aspect, but more particularly upon the inner side. A portion of the tumour felt firm and solid, but other portions were soft and fluctuating. A well-marked bruit was heard when the ear was placed over the aneurism, and the pulsation was especially marked over its centre.

The leg below the knee was slightly swollen and œdematous, and the pulsation in the tibials at the ankle was very feeble.

After consideration, I decided to treat the case by the "old" operation, and upon the 2nd of September I made a small incision into the aneurism, the circulation of the limb being controlled by a tourniquet applied round the upper third of the thigh. Having introduced my finger into the wound, and by means of it loosened the adherent clot in the sac, I laid the whole sac freely open, and removed all the clots contained in it, and I then found that there were two openings communicating with the sac,—one corresponding to the upper end of the popliteal artery, just at its junction with the femoral, and the other to the lower end of the popliteal artery. Both of these openings were pervious, and admitted a No. 10 bougie, which passed freely into the canal of the artery. The sac of the aneurism was entire, and its inner surface was lined with many layers of firm and laminated clot, and in addition there was a considerable amount of soft and recent clot in its cavity. The two openings in the sac were now separately secured, after the manner shown in the sketch. By means of the aneurism needle catgut ligatures, prepared with chromic acid, were applied, and when the tourniquet was removed there was no bleeding from the vessel. The external wound was now stitched, and a drainage tube introduced. Irrigation with a solution of corrosive sublimate (1 in 2000) was employed during the operation, and the wound was dressed with corrosive sublimate wool. His progress was perfect. Before the 10th of September the drainage tube was removed; upon the 27th of September the wound was healed, except at one small spot, the site of the drainage tube, and the patient sat up in an arm-chair. Three days after this he was allowed to walk a little in the ward with crutches, an elastic bandage being applied round the limb as a support. Upon the 15th of October he was discharged cured. On the 3rd of November, Dr. Hern, in a note to me in regard to another patient, writes:—"Norris is quite well, and at work."

My reasons for deciding on the old operation in this case were—

1. The unhealthy condition of the general arterial system.
2. The large size of the aneurism, and its rapid growth.
3. The œdema of the leg, and feeble condition of its circulation.

The case was quite unsuitable for pressure, and it belonged to that class of cases, already referred to, in which ligature of the femoral artery is acknowledged to be not only uncertain as regards the cure of the aneurism, but to be attended with a considerable risk of gangrene of the limb, secondary hemorrhage at the seat of ligature, a risk not now so great as formerly, or inflammation and suppuration of the sac.

It may be said, and has been said, that if the arterial system is unhealthy it is most likely that the artery in the region of the

aneurism will be especially affected and unsuitable for ligature; but Mr. Syme proved the fallacy of this in connection with his brilliant operations after the old method; and, having myself performed many operations of a similar kind, I can confirm his opinion, for I have never seen secondary hemorrhage occur when the old operation has been carefully performed with antiseptic precautions.

In favour of the "old" operation in my case, was the certain and speedy cure and obliteration of the sac provided all went well; the immediate removal of the large tumour, which was pressing upon the veins, and probably also upon the arteries, and interfering with the proper circulation of the limb,—so that in this way two of the principal risks, gangrene of the limb and suppuration of the sac, were in great part done away with.

From my experience in this and two previous cases, and from my experience in other varieties of aneurism, I feel justified in expressing the opinion that the "old" operation is to be preferred to ligature of the femoral artery in Scarpa's triangle in the following conditions of popliteal aneurism:—

1. In cases of large aneurism filling up the space, and interfering by pressure with the venous and other circulation of the limb below, or causing serious nerve pressure.

2. In rapidly growing aneurisms, which have attained some size.

3. In ruptured and diffused aneurisms.

4. In aneurisms which have involved the knee-joint by pressure.

5. In aneurisms attacked with inflammation and suppuration.

6. In aneurisms which the ligature of the femoral artery and compression have failed to cure.

7. In arterio-venous and other aneurisms of traumatic origin.

8. In cases of general arterial disease, provided surgical interference is considered necessary or advisable.

In such of these conditions, which are of an acute nature, there must be no delay in performing the operation; and I need scarcely add that, should symptoms of gangrene already be present in any case, amputation is the rule.—*Edinburgh Medical Journal*, Feb., 1886, p. 717.

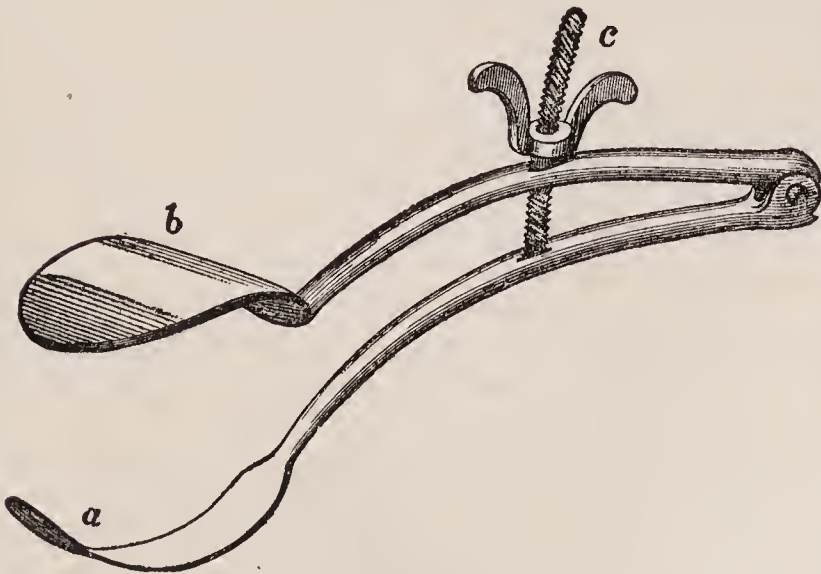
57.—ON COMPRESSION OF THE INNOMINATE ARTERY.

By Professor ANNANDALE, F.R.S.E., Edinburgh.

In this paper I propose to consider:—1. Temporary compression of the innominate artery in connection with prevention of hemorrhage in operations or injuries involving its main branches. 2. More permanent compression of this same artery in connection with the treatment of aneurisms involving its main branches.

1. It was my good fortune more than twenty years ago to assist the late Mr. Syme in many of his important operations

upon aneurisms after the "old" method. In two of these cases the aneurisms involved the axillary artery, were of very large size, filled up the whole axilla, and projected under the clavicle, so as to make compression of the third part of the subclavian artery difficult and uncertain during the operation of laying open the sac. In one of these cases Mr. Syme made a small incision through the skin immediately above the clavicle and parallel to it, so as to allow the finger of an assistant to be passed into the wound, and so compress the subclavian artery more directly until the sac was opened, and the axillary artery secured at the point of communication with it. It occurred to me at the time of this operation that there was a certain amount of risk in opening into the aneurismal sac or of rupturing it above the clavicle with the finger, an accident which would have much complicated the proceeding; and it further occurred to me that an axillary or subclavian aneurism might so project into the neck as to make temporary compression of the subclavian artery between the heart and the aneurism impossible. I accordingly made some dissections on the dead subject and some observations on the living body, and as a result of these I found that temporary and efficient compression of the innominate artery could be accomplished by a very simple proceeding. In order to assist in this compression I had constructed the instrument shown in the accompanying illustration. This instrument has now been in my collection for many years, but it was only quite recently I had an opportunity of using it in the case presently to be described. It consists of two blades (*a b*) united by a hinge joint and separated and approximated by means of a fine screw (*c*); and its application will shortly be explained. I advocate the following method of compressing the innominate



artery when the circulation in its chief branches cannot otherwise be controlled, as in the case of wounds or operations involving the right subclavian and first part of the right carotid artery. Make

an incision in the middle line of the neck about two inches in length over the lower part of the cervical trachea, the same

as is usually made for performing low tracheotomy; cut down through the various textures until the trachea is exposed; and it will then be found that the finger or a director can be insinuated by a careful separation of the tissues behind the innominate artery, and this vessel compressed against the sternum or sterno-clavicular articulation, so as to stay all circulation in its branches. This fact I demonstrated upon the living subject in the case appended to this paper. If preferred, the blade *a* of the compressor, protected by a piece of indiarubber tubing, can be gently passed behind the artery in the same way, the blade *b*, protected by an indiarubber pad, being placed outside over the upper part of the sternum. The instrument has been so curved that it lies across the neck obliquely without compressing the trachea. This instrument was also tested upon the case already referred to, and was found to be efficient. The special curve in the lower blade was found to be important in preventing the artery from slipping downwards over its point when compression was made. Although this case ended fatally, the temporary compression with the finger and instrument was not, in my opinion, the cause which led to fatal hemorrhage, and it is important to note that no chest complication followed the proceeding.

2. Ligature of the innominate artery for the relief of aneurism involving the first portions of the right subclavian and right carotid arteries, has proved to be so fatal a proceeding that even with improved animal ligatures and antiseptic precautions surgeons hesitate to practise it. Neither has compression of the innominate artery in these cases given much encouragement. In the cases published by Bickersteth and Porter, secondary hemorrhage from the point of the artery compressed proved fatal. In both cases the compressor employed was applied direct to the walls of the artery, and was narrow in form. In Porter's case a kind of double aneurism needle was used, and in Bickersteth's case wire connected with an ingenious arrangement of elastic bands formed the compressing agent. Having recently endeavoured to carry out compression of the innominate artery in a case of subclavian aneurism by a method differing from those of Porter and Bickersteth, I record a note of it. I am especially wishful to report the case because the cause of the secondary hemorrhage which killed the patient was unexpected, and requires careful consideration in connection with the present and common use of indiarubber drainage-tubes. My proposed method of procedure in this case was: 1. To expose the innominate artery by means of the incision advised, with antiseptic precautions. 2. To insert one end of an indiarubber drainage-tube under the artery, and leave it there in position until the tissues had become accustomed to its presence, and until the risk of a septic condition of the wound was diminished. 3. When the latter conditions had been obtained, to

introduce the small blade of the compressor into the drainage-tube, and carry on compression of the artery more or less continuously according to the effect produced.

J. B——, aged fifty-three, was admitted into the Royal Infirmary under my care on May 14th, 1885. His history was that, in April, 1884, while lifting a heavy weight, he felt "something give way" at the root of his neck, and he became very faint and remained so all day. In the evening of the same day he noticed a swelling above his right clavicle, which pulsated and slowly increased in size. On admission, an aneurism of the third and involving a portion of the second part of the subclavian artery was diagnosed. He was treated by rest, careful diet, and the iodide of potassium for about a month, with the result that his symptoms were relieved, but the aneurism remained in much the same state. He then left the hospital at his own desire, and he promised to return if he became worse. Nothing more was heard of him until he was readmitted in May, 1885. His symptoms had again increased, and he complained much of a dull aching pain over the right side of his chest, and shooting towards his back. The aneurism was the size of a small orange, and pulsated strongly; a marked bruit was present. The tumour was situated immediately above the centre of the right clavicle, and the pulsation passed down into the axillary artery, which was somewhat dilated. The heart-sounds were normal, except that those over the aortic area were fainter than usual. The radial pulses showed signs of slight atheroma. The other internal organs were healthy. No history of syphilis could be obtained. On May 27th I exposed the innominate artery by the median cervical incision, and readily separated with my finger and a director the tissues, so as to allow the former to pass behind the artery and compress it against the sterno-clavicular articulation. The compressor was then applied, and found also to act in thoroughly staying all circulation in the vessel and its branches. The compressor having been removed, an indiarubber drainage-tube, with a diameter of half-an-inch, was inserted into the wound and adjusted so that its one extremity lay behind the artery and the other protruded from the external wound. The drainage-tube was secured in position by a piece of silk thread tied round the neck. The operation was performed with the usual antiseptic precautions, and the wound was dressed with salicylic wool applied loosely over it. On the 28th his temperature was 99.4° . The wound was dressed and looked well. On the 29th he complained of pain in the wound, and had a slight dry cough. His temperature was 102° . On the 30th his cough was better, and his temperature was 101.2° . On the 31st the wound was dressed for the second time since the operation. It had in great part healed, except at the point of insertion of the drainage-tube. The tube was removed, cleaned, and replaced.

Cough still troubled him. After this date the patient's progress was most favourable, and the wound was dressed daily; it remained aseptic. On June 6th it was noted that the cough had entirely disappeared, and the patient was otherwise well. He still complained of some pain in the lower part of the neck. On the 7th there was a small quantity of blood upon the dressings, but nothing to cause any alarm. On the 8th, while the patient was sitting up in bed, serious arterial hemorrhage suddenly took place, which was temporarily checked by passing the finger deeply into the wound and compressing the artery against the sternum. Shortly afterwards I visited him, and, finding that the bleeding proceeded from a point in the innominate artery, I prolonged the original incision along the line of the clavicle so as to expose the artery more thoroughly, and apply a ligature round it. As I required to keep the finger of one hand upon the bleeding point, I found it impossible to pass a ligature round the vessel between the heart and this finger, although I made several attempts to do so. I then applied the compressor in the way described, and this completely stayed the bleeding. By this time the patient was almost pulseless, and, although no further bleeding took place, he sank and died about five hours after. The post-mortem examination disclosed an aneurism about the size of a hen's egg, involving a small portion of the second and the whole third portion of the subclavian artery. The axillary artery was also dilated, especially in the first part of its course. At a point on the posterior aspect of the innominate artery, and immediately below its bifurcation, there was an oblique slit or ulceration nearly a quarter of an inch in length involving its entire coats; the other portions of the artery and the heart and aorta were in good condition, and did not show any marked traces of atheroma. The ulceration in the coats of the artery exactly corresponded to the point against which the drainage-tube rested, and there were two small spots on the trachea which showed signs of commencing absorption, the result of the pressure of the same tube.

In connection with this case I would remark, first, upon the cause of the fatal secondary hemorrhage; and, secondly, upon the future prospects of compression of the innominate artery for the relief of aneurisms on the right side of the neck.

1. The cause of the fatal hemorrhage was, in my opinion, the ulceration of the coats of the artery owing to the continuous pressure of the drainage-tube. I am not aware that the pressure of a drainage-tube has been thought likely to lead to so serious a result as in the present case, more particularly when the wound in which it lay remained aseptic; but from the experience of this case, and of others of which I have quite recently heard, I consider that we must now reckon this risk as possible, and avoid any lengthened continuous pressure upon a large blood-vessel by a

drainage-tube. It may be said that the manipulation of the artery when the drainage-tube was first introduced may have assisted in destroying or weakening the coats of the artery; but as the artery was in a healthy condition, and the manipulations of it were conducted with gentleness, I do not think so, and would attribute the rupture entirely to the results of the pressure of the drainage-tube.

2. Owing, then, to the unexpected accident, caused by the drainage-tube, my proposed suggestions for the treatment of this case could not be carried out; nor do I advise that they should in any future case be employed exactly upon the same lines. I do, however, still hope that by some modification of the compression of the innominate we may succeed in relieving aneurisms which admit of no treatment other than the unsatisfactory one of ligaturing this artery. The direction of this modified compression should, I venture to assert, be on the principle of applying, with the assistance of a central cervical incision, digital or instrumental compression to the innominate artery, the patient being under the influence of some anæsthetic. Such compression should not be too continuous, and should be combined with distal ligature or compression, or, if thought advisable, with electrolysis.—*Lancet*, March 13, 1886, p. 481.

58.—ON LIGATURE OF THE SUBCLAVIAN ARTERY FOR AXILLARY ANEURISM.

By BENNETT MAY, F.R.C.S., Surg. to Queen's Hosp., Birmingham.

[Mr. May gives the narrative of a case of axillary aneurism recently under his care, in which he applied a ligature to the subclavian artery with, so far as the aneurism and the operation were concerned, complete success, the patient dying from delirium tremens subsequently. The greater part of Mr. May's paper is devoted to a review of the treatment of axillary aneurism by ligature above the sac, which review is here reproduced.]

The treatment of axillary aneurism does not appear to hold the same settled place in practice as that of surgical aneurisms in other parts of the body. The principle of the Hunterian ligature, so universally accepted elsewhere, has been considered by good authorities less applicable to this region. Mr. Syme, as is well-known, felt great doubt as to its superiority over the old method of operating, which he revived, and which is now frequently spoken of as his operation. He considered that the anatomical conditions which made Hunter's method so manifestly superior, and the older operation so certainly fatal, in the case of popliteal aneurism, are quite altered here, inasmuch as, among other reasons, it is impossible to have a long stretch of vessel to operate on. He and others have further objected to the new method—viz., ligature of the

subclavian in its third part—on these grounds: (1) the difficulty of its performance; (2) the liability to fatal inflammation of the deep parts; (3, and mainly) the uncertainty of the course pursued by the aneurism, as it by no means necessarily follows that its contents will be absorbed. The advantage he found in the old operation was that when once the sac has been freely opened the whole of its contents are removed, so that there is no longer any anxiety on that score; and he states—what is not generally accepted, or only in the case of recognised lacerations—that the portion of the artery next the sac is in nowise unfitted for the application of the ligature. He by no means thinks lightly of the severity and formidable nature of the method he advocates—in fact, he devised a special measure of rendering it practicable by better control of hemorrhage; but he appears to distrust entirely the possibility of the ligature, even if safely applied, to lead to a cure of the aneurism, and to think that either rapid return of pulsation or sloughing of the sac and its contents is to be anticipated. Mr. Syme, as was usual with everything he uttered, had solid reasons for his opinions; he had treated one case with complete success by the method advocated, besides two by amputation at the shoulder, and apparently two more by ligature of the subclavian, so that he had enjoyed an altogether exceptional experience of the subject. He was no doubt justifiably enamoured of an operation which had served to furnish some of his most brilliant surgical exploits; but the case referred to, on which his opinions seem to be based, and which appeared in his well-known paper on the subject in Vol. 43 of the *Medico-Chirurgical Transactions*, is shown by Mr. T. Holmes to be of no particular value in support of them. Mr. Holmes points out that it was, strictly speaking, not a case of aneurism at all, but of ruptured artery unaccompanied by the formation of an aneurismal sac. The condition had come on suddenly after a violent jerk at the shoulder; it had been in existence only one week; and there was no pulsation in the tumour. Now this class of case is more commonly met with here than elsewhere, because the axillary artery is more exposed to accidental violence than other arteries. The result is seen in the frequent large size, rapid growth, absence of pulsation, and the other signs of diffusion of aneurisms in this region. The treatment of such cases of ruptured artery or ruptured aneurism has pretty well passed out of the domain of discussion. The only sound principle is that applicable to wounded arteries elsewhere, however great the practical difficulties may be. But Mr. Syme does not discriminate these from a larger and more numerous class of cases of axillary aneurism, which have the same apparent origin and progress, the same encysted or circumscribed features as other aneurisms, or in which diffusion is so limited and gradual that the surgeon justly hesitates to adopt the hazardous proceeding of Syme's operation.

How are these cases to be treated? Mr. T. Holmes is of opinion that ligature of the subclavian artery, though not intrinsically dangerous, is so dangerous in cases of axillary aneurism that it can only be undertaken with great reluctance, and that its use is to be restricted to cases in which pressure has either failed or is otherwise inadmissible. The high mortality, estimated at nearly one-half, he ascribes to (1) the vicinity of the ligature to a sac in a vessel far from healthy; (2) its proximity to large branches; (3) the loose structure or absence of sac leading to deficient formation of clot; (4) accidents from anatomical relations of parts concerned. Hence suppuration of the sac, secondary hemorrhage, or failure from return of pulsation is to be anticipated. Mr. Holmes, however, acknowledges that the statistics on which his opinion is mainly based—those of Norris and Porta—do not come down to a later period than 1873; and he anticipates that later experience may show better results. Mr. Erichsen regards ligature of the subclavian artery as the surgeon's chief resource in the treatment of spontaneous axillary aneurism; but on analysing recorded cases he found the practical result to be most unfavourable. Thus, out of forty-eight recorded cases (1873), he found twenty-three cures against twenty-five deaths, of which latter ten were due to inflammation within the chest. Mr. Erichsen observes that it is a matter of prime importance to determine whether this high mortality is the *accidental* or the *necessary* consequence of the application of a ligature in this situation for the cure of axillary aneurism. With the view of assisting in the elucidation of this question, I have collected all the cases of axillary aneurism reported in the Medical Journals and Societies' Transactions since 1873, that being the year when most statistical tables terminate.

Summary of Twenty-one Cases of Axillary Aneurism reported since 1873.—Fourteen cases were treated by ligature of the subclavian, of which number ten recovered, with cure of aneurism, which was of spontaneous origin, sacculated, and pulsating in all; one died of delirium tremens; one failed owing to the slipping of the catgut ligature; two failed from too free establishment of collateral circulation (both were cases of traumatic, pulseless aneurism, not suitable for ligature); amputation of the shoulder-joint was subsequently performed, with one recovery and one death. One case underwent spontaneous cure. Two cases were cured by digital pressure—both sacculated, pulsating aneurisms. One case died under galvano-puncture. Three cases were treated by the old (Syme's) operation, of which number one was cured (very small, spontaneous), one died of hemorrhage (very large, traumatic, and diffuse), and one was cured (traumatic—no particulars).

The result, as shown in this summary, furnishes a most emphatic answer to Mr. Erichsen's question, and brings out prominently the satisfactory character of treatment by ligature in appropriate cases.

The previous high mortality must have been, in a great degree, accidental and separable from the operation; and the improvement, I think we may conclude, is unquestionably owing to better methods of wound treatment and materials of ligature. In fact, we may now fairly reconsider the subject from a new standpoint—viz., that of the antiseptic animal ligature—and conclude that, for aneurisms of apparently spontaneous origin, which pulsate, which are encysted, or are not very widely diffused, there is no reason whatever for excluding the axillary artery from all the advantages of the Hunterian procedure.

It may be noted that compression of the artery above the clavicle has yielded good results, endorsing Mr. Holmes's recommendation that it should be the rule of practice in the first instance whenever practicable. With regard to other varieties, cases of recently ruptured artery, or of ruptured aneurism with diffusion, and with little or no pulsation, such evidence as there is in this table is in favour of the accepted custom of treatment by the old (Syme's) method, with a reservation in favour of amputation if found impossible of completion.

The difficulty of operating by ligature in any individual case must depend largely on the position and dimensions of the sac. If this encroach above the clavicle, or if its contents are becoming diffused, the proceeding may be a very perilous one; but so long as the ligature can be placed round the vessel without direct injury to the sac, it does not appear that proximity to the latter is of much moment. This is somewhat at variance with the generally received opinion in surgical pathology—viz., that the part of the artery close to the sac is necessarily unsound and unsuitable for the ligature. Of course, the part of the artery overlapped or comprehended by the sac cannot be operated on, but it has never been shown that the nearest part of the artery to which the ligature can be safely applied is less fitted for being the subject of operative proceeding than any other part of the patient's arterial system. The wall of an artery on which an aneurism is situated commonly presents little or no change in its appearance right up to the sac, and it is quite usual for a long stretch of perfectly healthy vessel to extend some distance beyond it. Syme attached no importance to the position of the ligature in this respect; he considered one part of the artery quite as favourable as another; and he gives this as one of his reasons for advising the old operation, in which the ligature must be placed close to the mouth of the sac. Probably proximity to a large branch is more serious than vicinity to the sac, but the importance of the position of the ligature in both these respects has been greatly lessened of recent years by the improvements I have indicated. So also with regard to the most serious of all complications—viz., inflammation of the deep textures. This is likely to be followed by septic infiltration of the neck and

mediastinum, by ulceration of the artery and secondary hemorrhage, or by pleurisy, pneumonia, and pericarditis. *Most of the mortality under the old high rate is included under these causes, while from the accompanying table of cases they are wholly banished.*

The part of the artery involved appears to exercise some influence on the prognosis. Low down in the loose axillary space aneurisms speedily attain a large size or become ruptured, and at this part the large branches are closely crowded. Consequently there is more uncertainty as to the course pursued by the aneurism after ligature, and greater risk of failure from return of pulsation or sloughing of the sac. Syme's operation, however, is less severe than higher up on the pectoral portion of the vessel, where, owing to the presence of fewer entering trunks, and less space for the growth of the aneurism, ligature is more likely to succeed. In my case, looking at the enormous size of the sac, the depth of its numerous large feeding mouths, the risk of wounding large veins and nerves contiguous to it, and the extent of the resulting wound, I do not see how it would have been possible to place ligatures round the implicated trunks with the slightest prospect of success. —*Lancet*, Oct. 3, 1885, p. 612.

ORGANS OF RESPIRATION.

59.—ON ADENOID VEGETATIONS OF THE NASO-PHARYNX.

By HENRY T. BUTLIN, F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital, London.

Take a typical case of this disease, and the *symptoms* are as follows:—A child, perhaps eight years old, and either male or female, is remarkable by the vacant expression of its countenance, which amounts almost to an air of stupidity. While you are talking to the parent or friend who brings it, you notice that its mouth is kept almost constantly open, and that it breathes with a peculiar snoring sound. The nose is generally narrow from side to side; the eyes are heavy; the face is lacking in expression. In reply to a question, it speaks in a "dead" voice, dull and nasal. The appearance of the child and the character of the voice suggest enlargement of the tonsils, and an examination of the throat frequently confirms this impression; for enlargement of the tonsils and granulations on the pharynx are often associated with adenoid vegetations. Or you may learn that the tonsils have already been removed, and that the improvement which was expected to follow the operation has either not been gained or has been only partial. Closer examination discovers semi-purulent discharge running down the back wall of the pharynx from the naso-pharynx, and in many instances the soft palate is more forward and more fixed than usual. The patient is usually deaf; indeed, deafness is one of the

chief reasons for which the child is brought. Inquire into the *history* of the case, when it will probably appear that the symptoms have been noticed in a varying degree for many months or several years, perhaps even from the earliest infancy. The dull expression, the muffled voice, and the discharge at the back of the throat have been present continuously from the first; but the deafness has been intermittent, or has been much worse at one time than another. There has occasionally been discharge from one or both ears, sometimes associated with pain and with all the symptoms of middle-ear catarrh. Occasionally, too, the discharge in the throat has been tinged with blood. The child has snored at night ever since the commencement of the symptoms. All the symptoms have been slowly growing worse, and have always been rendered more intense by a cold, to which the patient is usually very subject.

The symptoms and the history point to some affection of the throat and naso-pharynx. A *rhinoscopic examination* is made; the patient is told to breathe through the nose, first with the mouth closed, then with it open, and while the mouth is open and the breathing is carried on through the nose, the rhinoscopic mirror is introduced; for now the palate lies well forward, and there is ample space between it and the back wall of the pharynx. Although the breathing is not easily carried on through the nose on account of the disease, it can usually be managed for a minute or two. But the majority of patients, whether young or old, require training before they will permit a thorough rhinoscopic examination; the nasal breathing, which is maintained with very little effort so long as the tongue is unrestrained in the mouth, becomes exceedingly difficult when the tongue is depressed. The tongue and palate are until that moment in apposition, and the entrance of air through the mouth is barred, but the depression of the tongue opens a wide aperture through which air can pass by the mouth. It is, however, surprising how even very sensitive and intolerant patients can be trained in the course of a few days to the necessary

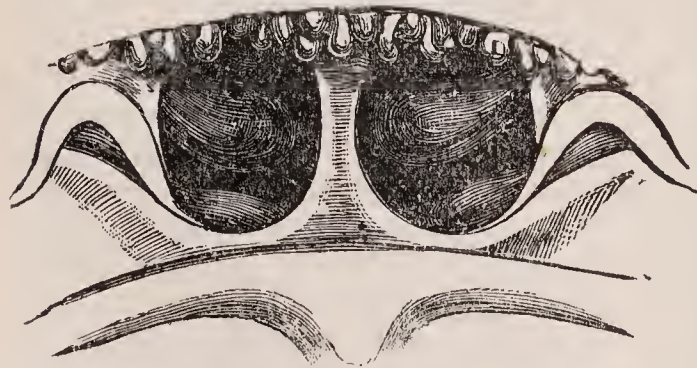


Fig. 1.—View of posterior nares, showing adenoid vegetations, numerous and small.

sessile lumps, of the same colour as the natural mucous membrane.

docility. Several of my dressers in the Throat Department, whose business it has been to train children for rhinoscopic examination, will bear me out in this. The mirror shows first that the posterior wall of the naso-pharynx is rough, and more or less closely covered with

or redder. The sides of the cavity are affected in the same manner, and the smooth Roman arches, which are naturally formed by the roof of each nostril with the septum, are broken and lowered by similar red masses. In some instances the chief seat of the vegetations is immediately behind the posterior orifices of the nostrils, in the roof of the naso-pharynx, in the situation of Luschka's tonsils.

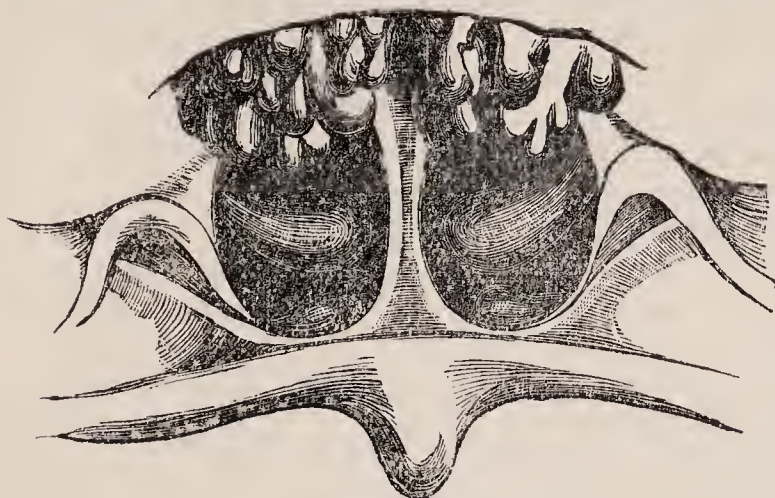


Fig. 2.—View of posterior nares, showing larger masses of vegetation.

In other instances, the cavity of the naso-pharynx is so filled by vegetations that scarcely any of the natural structures can be distinguished. The Eustachian prominences and the orifices of the tubes often appear quite free from vegetations, even in patients whose most

serious symptom is deafness or middle-ear catarrh. In addition to the examination with the mirror, and in those cases in which rhinoscopic examination cannot be accomplished, the finger should be passed up behind the soft palate, when the larger masses can easily be distinguished, and the smaller vegetations produce the impression of a velvety substance or the surface of a velvet-pile carpet. The roof of the cavity on each side must be especially examined, for here lies in most cases some of the disease—in many cases the bulk of it. When the finger is withdrawn, it will be found to be smeared with blood, for the vegetations bleed much more readily than the walls of the normal naso-pharynx.

Such are the symptoms, appearance, and feel of adenoid vegetations, and when they can be seen as well as felt, there is no fear of making an error of diagnosis. They occur very far more *frequently in children* than in adults; indeed, it is very rare to meet with them in persons more than twenty years of age, although there is at the present time a male patient in the Throat Department more than thirty years of age, from whom I have removed several large masses. They are, in my experience, more frequently met with in girls than boys; but other surgeons have found them more commonly in boys, so that probably the two sexes are equally subject to them. The youngest patient on whom I have operated was three years old, but the symptoms often date from a much earlier age than this. They occur in children of the rich as well as of the poorer classes.—*St. Bartholomew's Hospital Reports*, 1885, p. 153.

[For Mr. Butlin's operative treatment, see following article.]

60.—ON THE TREATMENT OF ADENOID DISEASE OF THE NASO-PHARYNX BY OPERATION.

By H. T. BUTLIN, F.R.C.S., St. Bartholomew's Hospital.

[Mr. Butlin proceeds, in the paper from which the preceding article is taken, to speak of the nature of the adenoid growths. He says they are probably more common in those of a scrofulous habit, and that they are not unfrequently associated with chronic enlargement of the tonsils, with which disease they are histologically closely allied, consisting as they do of outgrowths of the normal lymphatic tissue of the mucous membrane. They are not papillary outgrowths, as has been thought by some. They are very rarely found in adults, a circumstance somewhat difficult of explanation. The author suggests that with advancing age the vegetations gradually disappear in the large majority of patients, probably by contraction of the inflammatory products and by suppuration, whence comes the discharge usually seen in the pharynx. They are a cause of serious and permanent trouble, in the shape of frequent sore throat, bronchitis, and broncho-pneumonia, from the patient being compelled to always breathe through the mouth. Deafness more or less permanent, from changes in and about the orifice of the Eustachian tube, is not unfrequent. These and other considerations make it desirable, if not absolutely imperative, that in all cases the growths should be removed as completely as possible. After some reference to other methods of operating, Mr. Butlin proceeds to describe his own plan as follows.]

The patient having been prepared for the operation in the usual manner, is laid on a table with the head raised and towards the light. Chloroform is administered, and is maintained during the operation by means of Mr. Mills's tube and air-ball. A strong gag is placed between the teeth on the opposite side to that on which I stand. If there are vegetations in close proximity to the Eustachian orifices (which has probably been already determined, but which may now be clearly ascertained by examination with the finger, for the Eustachian prominence and orifice can easily be felt), or if there is merely thickening of the mucous membrane, I keep the forefinger of one hand on the orifice of the tube, and with



Fig. 3.—Meyer's ring-knife, used through the nostril.

the other hand pass Meyer's ring-knife through the corresponding nostril, and, guiding the knife with the finger behind the palate, scrape the prominence carefully from above downwards until the abnormal tissue is removed. The same manœuvre is repeated on the opposite side. This is done first in order that the small

growths at these important points may not be overlooked or obscured, as they very well may be when the naso-pharynx is full of soft blood-clot. In many cases, however, nothing requiring treatment will be discovered in the immediate vicinity of the Eustachian orifices, even in those cases in which deafness is a prominent symptom. Next, the exact situation of the largest growths having been ascertained by examination, they are removed piece by piece with Loewenberg's forceps, which may require to be



Fig. 4.—Loewenberg's forceps, used behind the soft palate.

introduced many times. Between the re-introductions the naso-pharynx is frequently examined with the forefinger, and in large cavities the finger and the forceps can be employed simultaneously. The back of the mouth is sponged out at frequent intervals, for, in addition to abundant salivary and mucous discharge, the bleeding is free, sometimes even profuse, owing to the vascularity of the vegetations. The free bleeding may well alarm persons who are not accustomed to the larger operations in the interior of the mouth, such as the removal of the tongue or upper jaw. It is impossible to describe all the manipulations with the forceps, the blades of which require to be pressed in turn against the back wall of the pharynx, its sides and upper wall, where the largest masses are often found. Care must be taken not to seize the Eustachian prominences or the septum nasi. The forceps at first appear very clumsy, but a little practice, especially if they are first employed on the dead body, will enable them to be used with safety, if not indeed with ease and freedom. It is particularly in regard to the use of these forceps that I always take care that the patient's mouth is opposite as good a light as can be obtained. The uvula, and even the free border of the soft palate, is apt to be thrust into the naso-pharynx by the finger or the forceps, and may be seized and torn. To avoid this unfortunate error, the uvula and soft palate should be *seen* in front of the forceps as the blades lie in the naso-pharynx. When the projecting masses which can be removed with the forceps have been taken away, the entire cavity is examined with the forefinger, first on one, then on the other side, and every irregularity or flattened prominence is scraped away with the finger-nail, which should be rather long for the purpose. I generally use the forceps from the right side of the patient, on account of the greater facility with which it is managed with the

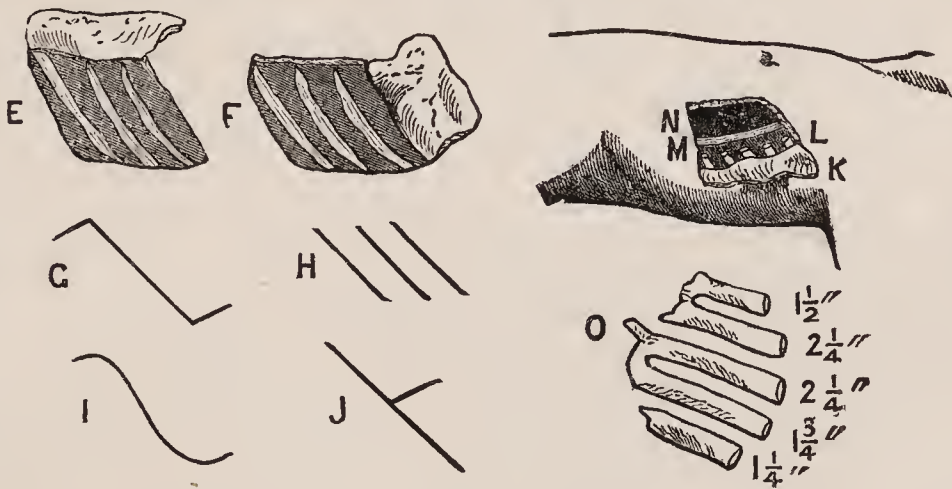
right hand ; but it is often necessary to introduce it from the left side, in order more readily to grasp a vegetation which cannot thoroughly be reached from the right side. The manipulations with the ring-knife and with the finger-nail are performed first on the one, then on the other side. During the whole of the operation the bleeding is very free ; the pharynx requires to be constantly sponged out, and the child may need to be turned over on its side to allow the fluids to escape. At a recent operation I completed the removal of the vegetations while the child was still lying on its side, and probably this may be effected in many cases with great advantage to the patient, both on account of the freedom of breathing at the time, and of the far less quantity of blood which runs down into the stomach, and perhaps the lungs. When the operation is completed, it is surprising how quickly the bleeding ceases.

The *after-treatment*, although it may be said to consist in doing nothing, is even more important than the manner of operating. The child is put to bed, and kept there for at least a week. If the weather is in the least degree cold, a fire is ordered to be kept up day and night, so as to maintain the temperature of the room at about 65°. These precautions are the more difficult to carry out because the patients, after the second day, usually feel well and desire to get up. They are the more difficult to carry out because there is absolutely no other treatment in twenty-nine cases out of thirty. There is no syringing, or insufflation of powder, or gargling ; and, as a rule, no medicine is needed. But when the child is delicate and has lost much blood at the time of operation, it is well to administer a dose of iron twice a day after the third or fourth day, and with the iron, in some instances, a small quantity of cod-liver oil. At the end of a week the patient is allowed to get up, but is not usually allowed to go out until ten days have elapsed since the operation. The necessity for great caution after the operation will be admitted by all surgeons who have been accustomed to treat adenoid vegetations. To begin with, many of the patients are naturally delicate, and therefore require special care ; the loss of blood at the time of the operation is never inconsiderable, and is often large for young children, so that they are weakened by it, and more liable, in consequence, to cold and pulmonary inflammations ; and one great danger in all cases is of inflammation of the middle ear, set up by the inflammation which almost of necessity follows wounds of the naso-pharynx. The object of the extreme caution in after-treatment is to reduce as far as possible the liability to these dangers. The only instances in which I have seen trouble ensue upon the operation have been those in which these precautions have been neglected. Recovery from the operation is, in the majority of patients, very rapid. —*St. Bartholomew's Hospital Reports*, 1885, p. 158.

61.—ON EXCISION OF PORTIONS OF RIBS IN CASES OF EMPYEMA—ESTLANDER'S OPERATION.

By RICKMAN J. GODLEE, F.R.C.S., Surgeon to University College Hospital, and to the Hospital for Chest Diseases, Brompton.

If the operation be decided upon, the surgeon must, after ascertaining the size of the cavity, make up his mind as to the method of exposing the ribs to be removed. One way of doing this is by means of incisions parallel to the ribs. Through one such incision, carried through all the soft parts down upon one rib, portions of one or two others may be removed. I have not employed this method myself, but feel sure that, if it be decided upon, it is wise first to expose one of the ribs bounding the sinus and take a portion of it away, as it is clear that no exploration with any form of probe can give anything like such an accurate idea of the cavity to be dealt with as can be obtained by the introduction of the finger. After this has been done, the method of several incisions may, if desired, be employed. I have generally employed one of the flap operations indicated by the accompanying diagram, *i.e.*, either



The above illustrates different methods of performing Es'tlander's operation. E, Three ribs exposed by a flap turned forwards. F, Three ribs exposed by a flap turned upwards. G H I J, Other incisions which may be conveniently employed. The figure to the right was taken from one of my cases. K, Flap turned backwards. L, The ends of the five ribs divided. M. Edge of thickened pleura which has been cut away. N, Cavity laid open. O, Parts of fifth, sixth, seventh, eighth, and ninth ribs removed, showing how the ends became rounded off and sometimes joined together after a previous removal of portions in front of those excised at this operation.

turning one flap upwards or inwards, or making two flaps by means of a T-shaped or zig-zag cut. In doing this the muscles may be left adherent to the bones, or turned up with the flap, according to the position operated upon. For instance, it is more convenient to turn up the pectoralis major with the flap, than to make several cuts across its fibres; but, on the other hand, if one or two ribs only are to be removed in the axilla, and the surgeon does not intend to remove the periosteum and pleura, the serratus may con-

veniently be left behind, a skin flap only being turned aside. The parts over the ribs are often very vascular, and it is not uncommon to meet with hemorrhage, which in a child is rather alarming, especially in the weak anæmic condition it will probably exhibit. The hemorrhage takes place from a large number of small arteries along the intercostal spaces. It is not worth while to spend much time in attempting to secure these vessels. It is very difficult to do so, and after the rib has been removed they cause no further trouble. After the periosteum has been removed from the outer surface of the whole length of the rib to be excised with a square periosteum elevator, a blunt and slightly curved one with a rounded end is slipped beneath the rib, and it is found in these old cases that the dense pleura and periosteum are separated much more readily than the thinner corresponding structures in a recent case. Generally, when the instrument has been introduced at one point, it can with a firm pressure upwards and downwards at once clear the whole of the required length of rib. This may then be divided, either in the middle of the exposed portion, or, as I am in the habit of doing, at one end of it. By grasping the detached end the other is then divided without difficulty. It is very seldom that a rib even of a strong man cannot be divided with cutting pliers—either an ordinary pair, bent on the flat at the joint, or else such a pair as I showed you at the last lecture. But in case of difficulty the surgeon may be provided with a small saw, made on a convenient pattern. It is long, however, since I have used any instrument except cutting pliers for this purpose. Having, then, removed a sufficient length—three, four, five, or more inches—of the rib from what is considered a sufficient area of the chest wall, the object being to render as far as may be possible the whole of the part that has to fall in pliable, or, in other words, to make the ends of the excised portion of rib correspond as nearly as possible with the anterior and posterior limits of the cavity it is intended to close, the question next arises as what is to be done with the periosteum and pleura. The great rapidity with which a rib is reproduced if the periosteum be left soon puts a stop to the process of contraction; and, indeed, it appears that in some cases a large mass of callus is developed, forming a complete bony wall, which is, if possible, more incapable of yielding than the closely imbricated ribs which it has replaced. It is wise, therefore, to remove as much as possible of this thickened periosteum and pleura, so as to leave, in fact, a great gaping hole instead of a cavity with a small outlet. This may be thought to be a serious undertaking, and I used to be in the habit of applying several ligatures to the proximal portion of the mass before removing it. Subsequent experience, however, shows that this precaution is not necessary; for though the superficial vessels bleed freely, little or no trouble is given by the trunks of the intercostal arteries themselves. I

have often removed some square inches of this dense material without having to ligature a single vessel; and if it be removed by snipping gradually away with curved scissors, the vessels, if any are met with, are easily secured directly they are divided, and no hemorrhage of consequence occurs. The further back the vessels are divided, of course, the larger they are. The surgeon now has the opportunity of making a thorough investigation of the cavity. It is not likely that the interior will bleed much, and he may, if he thinks fit, adopt means for stimulating, and what is more important, purifying the interior. For this purpose many scrape the interior with a Volkmann's sharp spoon, and consider it a very valuable proceeding. I have done it several times, but it is very difficult to distinguish any good that arises from this procedure from that which arises from the operation itself. Its chief use, probably, is in removing the septic surface of the pleura, and preparing it for the application of the antiseptic materials to be next applied. I cannot help feeling that it is rather a rough proceeding, and when we reflect that the spoon may be scraping over the surface of the pericardium, and may be passing very close to important branches of the vagus and sympathetic, and also that the amount of good to be obtained is, to say the least, problematical, I think we may safely urge caution in its exercise.

While speaking on this subject I must make a divergence to say a few words concerning the occurrence of sudden death during the injection of the pleural cavity. Injection of the pleura was, I believe, much more freely practised at one time than it is at present. It may be used for two purposes, one to diminish the fetor of the discharge, the other to stimulate the granulations to a more healthy action. The latter object I conceive to be altogether futile and imaginary, and indeed I believe that as regards the development of granulations it is positively mischievous, tending to break down and destroy those that already exist. As regards the purification of the surfaces, injection is no doubt sometimes very useful, and indeed sometimes essential to the comparative comfort of the patient—that is, in those cases where it is hopeless to attempt a closure of the cavity and the system is being poisoned by the putridity of the discharge. We sometimes practise it here, and are in the habit of employing a method which is perhaps the safest that can be devised:—A glass vessel with a perforation near the bottom, from which passes a caoutchouc tube, is filled with a solution of iodine of a pale sherry colour. To the caoutchouc tube is fitted a piece of gum-elastic catheter small enough not to fit tightly in the sinus. The caoutchouc tube is compressed by a pair of bull-dog forceps while the catheter is being introduced into the chest. When this is done the pressure is relaxed, and the bottle is raised very slightly above the level of the patient's body. In this way it is impossible to exert too great pressure inside the cavity,

for the pressure itself is slight to begin with, and, moreover, the fluid runs out alongside the catheter as soon as or before the cavity is filled. The only sources of danger are that too large a catheter may carelessly be employed, or that the bottle may thoughtlessly be raised too high. But at the same time it must be remembered that a considerable number of cases are on record where the injection, though it has been perhaps frequently repeated without serious consequences, has led to sudden death or the most alarming symptoms. Once such case I saw years ago at University College Hospital: it was that of a small boy, whose cavity, reduced at the time to very small dimensions, was daily washed out, by means of a syringe, with a weak solution of iodine. The boy used to sit up while it was being done, and one day during the process he suddenly died, and we were not able at the post-mortem examination to find any cause whatever for the disaster. The cavity was small, surrounded by thick fibrous walls, and there was no sign of thrombosis to be discovered. In the Clinical Society's Transactions (1876) is a paper on this subject by Dr. Cayley, detailing a case in which the practice was to withdraw the pus through a cannula and then to inject about four ounces of iodine solution, repeating the process several times. On one occasion six ounces were being injected into the cavity, which at the post-mortem it was found would hold twice that quantity, when the patient suddenly became deadly pale, with slow pulse, dilated pupils, and gasping breathing. This gave place to profound unconsciousness, flushed face, rapid pulse and respiration, and right-sided convulsions. The temperature rose to 107° , and he died sixteen hours after the injection; but the necropsy revealed nothing to account for the death. Dr. Cayley refers to several other cases more or less similar, some ending fatally, and others recovering from the most imminent danger; and I well recollect at the discussion which followed not a few speakers referred to cases which had come under their own cognisance in which similar results had followed. Now, though two explanations have been hazarded for these phenomena, according to which they may be attributed either to thrombosis or to reflex irritation, it must be owned that we are altogether without a satisfactory one. It does not appear to depend upon the fluid employed, for it has occurred when carbolic acid, iodine, or even simple water were being used; it does not depend upon the side of the chest affected, for some cases have been left-sided and others right; and it has always happened in cases in which the injection had been frequently practised before without serious consequences. We are therefore at present left with the fact that a serious issue may any day follow what appears to be the simplest of surgical procedures. It is this which makes me not only avoid injections except when it seems urgently indicated, but also rather shy of resorting to very heroic measures in the way of scraping the pleura. It is true that

I have frequently mopped out the surface with a strong solution of chloride of zinc (forty grains to the ounce), and have not seen any evil results follow; but I always do it with a degree of dread, and endeavour to apply it as gently as possible—not with a syringe, but with a piece of lint or a sponge.

Having, then, done all that seems safe or wise in the way of purification (and amongst the simplest and safest means I must not omit to mention the thorough application of iodoform to the surface), the next thing is the introduction of the drainage-tube. Bearing in mind what has been said about the method of closure of the cavity, it is clear that the tube must be placed as high up in the cavity as possible; that is, at the upper rather than the lower part of the opening that has been made. It may sometimes seem advisable, in order to facilitate this, to stitch up the lower part of the wound. In this case it will be advisable to introduce a small and temporary drain below the part which is saturated, while the main and more permanent tube comes out above. A few stitches may often be introduced into the wound with advantage.

[The author gives the notes of seven cases, in which he had operated, but only on one of them had the opening completely closed at the date of publication of the lecture. See also *Synopsis of this volume.*]—*Lancet*, Jan. 30, 1886, p. 189.

ALIMENTARY CANAL.

62.—ON THE APPLICATION OF TRUSSES IN HERNIA.

By JOHN CHIENE, Prof. of Surgery, Edinburgh University.

The application of a truss in the treatment of hernia must not be looked upon as simply palliative. In old people with long-standing herniæ, the curative action of a truss cannot be looked for; but in all recent cases at all ages a truss must be applied, not simply as a palliative, but in order to effect a cure. The younger the patient, the greater is the probability of this good result. The hernial protrusion, after it has once been reduced, should never be allowed to come down again. Although in the recumbent posture the chances of the hernial protrusion occurring are diminished, still, as any exertion, as in the act of coughing, may during the night cause the protrusion, a truss should therefore be worn day and night. During the night less pressure is required to keep up the hernia, and if a spring truss is irksome to the patient the hernia may be kept up by a thick pad of layers of lint or layers of flannel, fixed in position by an elastic spica bandage.

In *inguinal* hernia, a double spiral truss is preferable to a single-headed truss. In young children the presence of an inguinal hernia on one side indicates a tendency to hernia on the opposite side; in the adult the same factor is at work, although in a less

degree: for this reason the use of the double-headed truss is indicated. A double-headed truss also fits more comfortably, and gives that general support to the lower part of the abdominal wall which renders the patient infinitely more comfortable than if he used simply a single-headed truss. In inguinal hernia care must be taken that the pad of the truss does not press on the spine of the pubis. In the oblique variety the principal pressure should be over the situation of the internal abdominal ring, and the head of the truss should not extend to a lower level than immediately below Poupart's ligament. Otherwise, when the patient stoops, the tissues of the thigh, pressing on the lower border of the head of the truss, are apt to displace it in an upward direction and render it inefficient, the hernia escaping below it. Although in some rare cases a perineal band may be necessary, every endeavour should be made to avoid its use, as it is irksome. The wearing of a piece of boracic lint below the pad of the truss prevents chafing and irritation of the skin, and the parts are kept dry, the presence of the lint allowing of free evaporation. The pad must be flat, and have no tendency to press into the inguinal canal. All that is required is to support the weakened wall, and any pressure into the canal tends to weaken by atrophy the structures which form its walls, and in this way to prevent a radical cure. Everything should be done by the surgeon to imitate Nature's way of curing a hernia, namely, by contraction of the neck of the sac and contraction of the fascial structures which surround the neck of the sac. The surgeon should see to the application of the truss himself, and not trust it to any instrument-maker. The weaker the truss the better, as long as it fulfils its object, namely, keeping the hernia up. Each time the hernia is allowed to come down the tissues are stretched. The good work of weeks is undone by a single protrusion, and hence the importance of explaining to the patient the necessity of never allowing the hernia to come down.

In *umbilical* hernia, the natural tendency to contraction of the abdominal opening is interfered with if a nipple-shaped pad is used. The pad must be flat, of a considerable size and thickness, and in the child it is best kept in position by the use of a broad elastic bandage. If the pad is made of layers of flannel, it should be placed next the skin, under the chemise; the elastic roller is then passed round the body over the chemise, and a large safety-pin is passed through the bandage, chemise, and pad, fixing the last firmly in position.

In *femoral* hernia, the great depth of the crural ring through which the hernia protrudes prevents pressure being made directly upon it; and in this form of hernia the use of a small nipple-shaped triangular pad, fitted on to the ball and socket joint of the Salmon and Ody truss, as first recommended by Professor Spence, is the most efficient means of keeping up the hernia. By the judicious

use of what is termed a keeper, the lower extremity of the pad can be tilted upwards and backwards, increasing the efficiency of the appliance. In some cases of inguinal hernia, instead of the fixed head, the Salmon and Ody ball and socket pad arranged with a keeper may be found useful. Mr. Rawlins (*British Medical Journal*, Oct. 10) suggests an arrangement in which a double-headed Salmon and Ody truss may be applied; this method appears in principle to the writer to possess many advantages, and it should certainly have a fair trial.—*Edinburgh Medical Journal*, March, 1886, p. 801.

63.—ON DISTENDED GALL-BLADDER AND ITS TREATMENT.

By C. G. WHEELHOUSE, F.R.C.S., Consulting Surgeon to the General Infirmary, Leeds.

The gall-bladder is liable to become enlarged or distended in various ways. By inflammatory swelling of the cystic duct, the mucous membrane may be so thickened as to prevent the free ingress or egress of bile; and, at the same time, the addition to the bile contained in the gall-bladder of the products of inflammation from its own inflamed mucous membrane, may give rise to distension sufficiently great to cause a perceptible swelling or "tumour." Such swelling is generally temporary in character; and its formation is attended by so much of fever, of constitutional disturbance, and pain, as not to lead to the suggestion even of cholecystotomy. Time and appropriate treatment generally suffice to effect a cure. If, however, the inflammatory symptoms run high, such cure may not take place till suppuration has occurred, and a true empyema of the gall-bladder has been developed. Even then, if the ducts be not permanently occluded, the pus, on the cessation of the inflammatory thickening of their coats, may find its way into the intestine, and so relief may gradually be obtained.

In former works on surgery, I am inclined to think that such cases were frequently classed with abscesses of the liver, and treated like them, as recommended and practised by the late Sir Dominic Corrigan, by escharotics, followed by incision and evacuation; and often, if not generally, with an unfavourable issue.

But much more commonly, in addition to the inflammatory occlusion, the duct of the gall-bladder becomes blocked by biliary calculi; and then the obstruction becomes much more serious and permanent in character, and calls for aid by more decided surgical procedure. This, by the operation of cholecystotomy, we are now able to afford; and, so far, so great has been the success which has attended the operation, that it may now with propriety be considered as a recognised surgical proceeding. Mr. Lawson Tait, of Birmingham, to whose labours, in many directions, in the cause of abdominal surgery, we owe a heavy debt of gratitude, may very

truly be regarded as the pioneer by whom this new procedure has been conducted to the successful issue of general recognition. I do not know what number of cases may, up to this time, have passed through his hands ; but, in his last publication on the subject which I have seen, he gives the details of sixteen consecutive and invariably successful ones. His lead has, I know, been followed by others in his own town ; and his example is not likely to have been overlooked in any large surgical centre.

In Leeds, up to the present time, I have the records of six cases before me in which the operation has been performed in this hospital ; and I know of one other which was in the hands of Mr. Robson in private, and as to the propriety of operation in which he did me the honour to take my opinion. So far, unfortunately, we have not reached the measure of Mr. Tait's success ; for, of the seven cases to which I refer, death has occurred in three ; but, of these, two were hopeless from the first, and the third would probably have been better had it been left untouched (table of cases exhibited). Considering, however, that the operation is of such recent development, and that we have yet to learn almost everything concerning it, except how to perform it, it is not unreasonable that we should expect many failures at first, but failures which, as time goes on, we may hope to learn how to avoid. Thus, we shall presently collect material enough from which to judge as to the best time at which to operate, whether early or late, whether during the presence or otherwise of jaundice, and whether or not to interfere when the disease in the gall-bladder is only part of a greater complication of disease.

One case tending in this direction has already happened to myself, and is worth placing on record. A female, with an abdominal tumour, was under my care in this hospital last year, and it was very difficult to determine what the nature of the tumour was. At the time it was before us for consultation, three different opinions were advanced. By some, it was thought to be an enlarged and diseased kidney ; by some, as more likely to be a malignant disease of the omentum ; and by some, the suggestion was offered that it might be an enlarged and distended gall-bladder. At any rate, one conclusion was alike arrived at by us all, and that was, that the only way to clear up the difficulty was to perform abdominal section, and be guided by what was found as to what should be done further.

This I accordingly did ; and, finding a huge mass of cancer intimately and closely adherent to an extensive surface of the abdominal wall, the removal of which, with any prospect of success, seemed to us all to be impossible, I simply closed the wound again, feeling that nothing more could be judiciously attempted. The incision healed by first intention ; the operation appeared to have in no way influenced the patient's condition. She made a good recovery

so far as the operation was concerned, and left again for home, apparently in just the same condition as that in which she came to us. But, after all, from the story of the sequel, which has been given me by her medical attendant at home, the gall-bladder must, I think, have been in some way involved in the heap of cancer; for one night a portion of the wound was found to have opened up again; her bed was saturated with discharge, and ten or eleven gall-stones were found in it in the morning.

Now this leads me to the question of diagnosis, which is often a matter of extreme difficulty. The size of the tumour is often very misleading. Thus, in Ziemssen's *Encyclopædia*, Professor von Schueppel mentions one case "which occupied almost the entire abdomen," and had grown to that size in eight months. Another, reported in the *Lancet*, 1878, reached the iliac fossa in a downward direction, and two inches beyond the linea alba in the transverse; and a third, an empyema, is spoken of as being "as large as a man's head." Size, therefore, is clearly very little to be depended upon. The feeling communicated by the tumour is also very deceptive, seeing that it is sometimes very hard, at others very soft, sometimes "fluctuating," sometimes "elastic;" and the shape is almost as unreliable, for though at first it is necessarily pyriform, yet as the distension advances it loses more and more of that characteristic, until it may be quite globular, or even irregular, in shape and outline. Some patients remember that it was originally pear-shaped, but the patient's statements on this head cannot often be relied on with any certainty. Position is said to afford a more trustworthy guide; and on this head I quote from Mr. John Taylor, of Birmingham, who writes on it to the following effect. "In many cases of distension of the gall-bladder, there is no difficulty. The history of biliary colic, and the passage of calculi, together with the physical signs, make the diagnosis easy; but, in some cases, especially those in which the obstruction is due to a single calculus, or some other cause, there is evidently very great difficulty. An important aid to diagnosis will, I think, be found in the recognition of the diagonal line in the direction of which the gall-bladder enlarges. This is to be traced from the normal position of the larger end of the gall-bladder (near the tip of the cartilage of the tenth rib on the right side) to the opposite side of the abdomen, crossing the middle line slightly below the umbilicus. In the direction of this line, a distended gall-bladder will, I believe, naturally lie."

Another guiding line that has been given is a line drawn from the acromion process of the right shoulder to the centre of the pubes. Which of these two, or whether either of them, will eventually prove of practical utility, I cannot say; nor should I have mentioned them, seeing that I am unable practically to confirm either of them, if it had not been that Mr. Taylor speaks con-

fidently of the former one, and that, in an operation so novel as that of which I am speaking, we may have reason, from time to time, to be thankful for all the help we can obtain.—*British Medical Journal*, Dec. 19, 1885, p. 1150.

64.—ON GASTROSTOMY FOR ŒSOPHAGEAL CANCER.

By T. F. CHAVASSE, F.R.C.S.E., Surg. General Hosp., Birmingham.

The surgical treatment of cancerous stricture of the œsophagus has of late years received considerable attention. Three proceedings may be said to have proved of service:—I. The gentle passing of a small bougie through the stricture. II. The prolonged retention in the œsophagus of a tube passing beyond the stricture, in calibre equal to a No. 8 or 10 English catheter. III. Gastrostomy.

I. *The passing of a small bougie through the stricture.*—The effects of this proceeding are often most marked for a time, the patient being subsequently able to swallow liquids with comparative ease. The duration of this facility varies, but I have known it remain for several weeks.

A case that recently came under my notice was a private patient of Dr. Littlewood's, of Walsall. I saw him on July 22nd, 1885. The age was stated to be sixty-five; there was a history of gradually increasing and at the time of consultation most pronounced dysphagia, of emaciation, and of syphilis acquired twenty years before. On examination, an obstruction was encountered in the œsophagus, about five inches from the teeth. Eventually a tube the size of a No. 11 gum-elastic catheter was passed through this. The instrument was felt to pass over a roughened surface, and on its withdrawal was found streaked with blood. Immediately afterwards the act of swallowing was much improved, and up to the date of death (Sept. 29th) remained fairly satisfactory, especially if vinegar was taken to aid the downward course of nourishment.

I must, however, warn you not to repeat this procedure at frequent intervals when the diagnosis has been satisfactorily completed, or else a perforation of the walls of the gullet may thwart your efforts at alleviation.

II. *The prolonged retention of a tube in the œsophagus.*—Mr. Durham states that in one case he kept the same tube in unre-moved for four weeks, the patient feeding himself comfortably and satisfactorily through it. Except as a means of affording very temporary relief, I am adverse to this plan of treatment—1. Because any structure the seat of a malignant neoplasm should be kept at rest, and not irritated in any way, if a slow development be wished for. A foreign body passing through an epitheliomatous

growth in the œsophagus will certainly tend to increase the ulceration and the probable formation of a fistula connected with the trachea. At several post-mortem examinations of cases of malignant disease of the œsophagus, I have noted the enlarged caseating and also suppurative condition of the glands round the upper opening of the stomach, and cannot but think that the pressure of a tube in the gullet for a long period would have a tendency to increase the glandular complication, perhaps more so than the mere passing of liquid food through the stricture. 2. Because in my experience the tube cannot always be tolerated, and when it is it is very inconvenient, and reduces the patient to a very helpless condition. 3. Because if an attempt is to be made to prolong life, gastrostomy will probably have to be resorted to at last, and then the operation is not performed under the most favourable conditions.

III. *Gastrostomy*.—Accepting the plan now universally adopted, of dividing the operation into two stages—that is, waiting for adhesion of the stomach to the abdominal parietes before opening the viscus—we will discuss the various methods now employed of obtaining firm adhesion.

1. *The simple suture*.—The stomach, having been exposed, is secured by four or more silk or wire sutures on each side to the edges of the abdominal incision. Mr. Bryant thinks this is sufficient. In some instances it undoubtedly is. In a case sutured in this manner by my colleague, Mr. Jolly, a fatal termination occurring at the end of five days from pneumonia, the adhesions found at the post-mortem were enough for practical purposes. At the same time, it must be borne in mind that the broader the surface offered for the approximation of the anterior stomach wall and the peritoneal lining of the abdominal wall, the better the chances of obtaining the desired adhesions. The simple suture does not offer a very broad area for adhesive formation, and if severe efforts at vomiting occur after the operation, anxiety may arise as to its stability.

2. *A double row of sutures*, as introduced and advocated at one time by Mr. Howse. The outer ones, seven or eight in number, after passing through the anterior stomach wall, are made to pierce the parietes three-quarters of an inch from the margin of the abdominal incision, and secured externally by a piece of bougie or button. The inner ring, three sutures on each side, fasten the stomach wall to the edges of the skin. It must be evident that this plan offers a large surface of the stomach for adhesion, and great security if the organ must of necessity be incised for feeding purposes within twenty-four or forty-eight hours of the completion of the first step of the operation. As in the majority of cases this necessity ought not to present itself, and the application of the double row in actual practice will be found to be rather a tedious performance, he has recently advocated another plan.

3. This consists in clamping the anterior wall of the stomach with forceps sheathed in india-rubber, and which by their weight pull forward the viscus and keep it in position without the aid of stitches. The compression is not severe enough to cause sloughing of the stomach wall, and the forceps are left *in situ* for seven or eight days. This method has been successfully carried out by Mr. Howse.

4. This method may be called "the gather or running stitch." It is very simple in its application, and in three cases in which I have employed it has proved effectual. It consists of three or four sutures passed transversely through the peritoneal and muscular walls of the stomach and out again three or four times, and piercing the abdominal parietes on each side about two inches beyond the edges of the incision. By tightening the sutures so introduced, the edges of the primary incision are brought into apposition, and the anterior wall of the stomach pulled up and maintained in close contact with the parietes, leaving only about half an inch of the viscus exposed, to which the silver wire suture, introduced longitudinally at an early date of the operation and left protruding, is a guide for the subsequent puncture.

5. *Mr. Boyce Barrow's method.*—The stomach having been exposed, a portion of its anterior wall is pinched up by the fingers of the operator. Two good-sized hare-lip pins are made to transfix it, seemingly through its whole thickness, in a direction transverse to the skin wound and about half-an-inch apart. The projecting ends of the pins are carefully protected by india-rubber. Catgut sutures are then used to bring the deep peritoneal and superficial parts of the wound closely round the pins and protruded portion of the stomach. No sutures are introduced into the viscus itself. The operation in the case in which it was first performed was completed on the tenth day, and the patient lived for three months afterwards. The advantages claimed for this plan are that it is very simple and quickly performed, and the stomach, it is thought, may be opened early if needed, without fear of extravasation. The only objection I can imagine is, that the passing of the pins may result in the formation of additional gastric fistulæ, as they must be of a good size, and allowed to remain until after the completion of the second part of the operation.

The causes of death after gastrostomy may be said to be—(1) shock, (2) peritonitis and exhaustion, and (3) broncho-pneumonia.

In four of the five fatal cases (recorded in the paper) pneumonia was found at the post-mortem examination. Abscess in one, probably due to perihepatitis; subacute peritonitis in one also. In the case where it was found necessary to complete the operation at one sitting in a worn-out patient, the shock necessarily attending the procedure was not recovered from.

[The sixth case is given in full in the lecture: A man, æt. 56. First stage of operation on July 28; stomach opened August 5th; died Jan. 23rd, with double pneumonia. Mr. Chavasse adds,]

The question which we have to consider is the advisability of the surgeon strongly recommending gastrostomy to those of his patients who are better educated and able themselves to grasp the facts of the operation. I would place on one side entirely the cases of fibrous stricture of the œsophagus; in such patients the results of gastrostomy are frequently most gratifying. In cancerous disease it is otherwise. The *raison d'être* of the operation in such I take to be (1) to prevent suffering, and (2) to prolong life. To be of any real service, therefore, the stomach should be opened as soon as the diagnosis is complete, and before the vitality of the individual is enfeebled. With our patient in fairly good health, not much pain, and only moderate discomfort, is it just to urge an operative measure that is not altogether free from risk, is certainly painful in more ways than one, and when successful affords no permanent relief and always more or less persistent discomfort? It is true a success may be a source of satisfaction by preventing the acute pangs of starvation becoming dominant, and the painful results consequent upon the formation of a fistula between the œsophagus and trachea. The prolongation of life itself is, after all, only a matter of a few months, and is such an existence desirable? Possibly it is a matter that an intelligent patient ought to decide for himself, after the ungarnished facts have all been placed before him by the surgeon. He may, if supplied with the luxuries of life, elect to bear, aided by the palliatives of the milder forms of treatment, until the unbearable be reached, and then seek relief by other means than those afforded by surgery. With those in the humbler walks of life it is perhaps better to operate early, and to maintain, and from time to time to utilise, the gastric fistula, retaining the cases under one's personal supervision. It appears more humane to adopt this course rather than expose them to the uncertainties of their own rude fare, the surroundings of their questionably comfortable home, and the want of constant and adequate nursing and professional care.—*Lancet*, Feb. 20, 1886, p. 337.

65.—ON FÆCAL ACCUMULATION.

By FREDK. TREVES, F.R.C.S., Surgeon to the London Hospital.

Fæcal accumulation is essentially a condition of the colon, and may be taken to be synonymous with obstinate constipation. If the bowels so act that the normal amount of excrementitious matter in the colon is not increased, it is obvious that constipation cannot exist. The small intestine plays an exceedingly important part in the causation of constipation, but the accumulation is in the colon. The more conspicuous effects fall upon that bowel.

There is no evidence to show that collections may form in the small intestine and cause symptoms while the colon remains free. Indeed, the consistence of the contents of the ileum is such that an obstruction could hardly form without mechanical aid, or unless with those contents were carried a foreign body.

The causes of constipation are usually placed under three categories—(1) diminished peristalsis; (2) diminished secretion; and (3) diminished absorption. In all these the lesser bowel is intimately concerned. There is no doubt that intestinal indigestion is a very common cause of the present trouble. Assimilation being imperfect, the amount of excrementitious matter is increased, and it is probably discharged into the colon in a condition that is least likely to excite the movements of that bowel. The small intestine, moreover, is largely concerned in influencing the amount of fluid within the bowel, and it must also provide for the colon a kind of *vis a tergo*. Although the functions of the small gut may be imperfect and its action slow, yet it appears in due course to empty its contents into the colon. It is here that the accumulation takes place. It is added to day by day until its proportions may become enormous. Cases are recorded in which the sigmoid flexure has attained a circumference of twenty-seven inches, and the colon a diameter of five or six inches, and in which the collected fæcal masses have amounted to many quarts, or to ten, twelve, or even twenty-six pounds. Yet even in extreme cases the ileo-cæcal valve appears to remain firm, and the colon is distended to remarkable proportions, while the small gut is comparatively unaffected. Indeed, these huge accumulations would be impossible did not the ileum possess and maintain the power of discharging its contents. In one of the cases just alluded to the constipation had lasted for six weeks, the colon contained fifteen quarts of fæces, and possessed a diameter of six to eight inches, yet after death the lower end of the ileum was only found to be "somewhat distended." The symptoms that attend fæcal accumulation are liable to remarkable variation. The colon may be distended and blocked from the cæcum to the rectum, and yet the condition may be attended—for some time at least—by no grave disturbances. The recorded cases of long-continued constipation prove this. Dr. Johnson, of Washington, has brought together a number of such cases in his valuable monograph upon this subject. The collection includes instances of constipation existing without relief for periods varying from three to eight months.

The symptoms of continued chronic constipation are familiar, and need not be enlarged upon. It may, however, be questioned whether the intestinal dyspepsia that so often accompanies the condition is a consequence rather than a cause of the chief troubles. That there is nothing of itself exceedingly deadly in chronic constipation may be considered to be proved by the cases just alluded

to where the evil had been long abiding. The chief danger in fæcal accumulation depends upon the sudden advent of symptoms of acute intestinal obstruction, and it is after the appearance of such phenomena that the patient very usually dies. To this condition, in which acute symptoms are engrafted upon chronic, the name of "ileus paralyticus" has been given. It is supposed that the phenomena depend upon paralysis of some portion of the bowel. "To produce ileus paralyticus," writes Leichtenstern, "it is sufficient that a long portion of the intestine should be incapable of peristaltic action. The intestinal contents collect in this, and oppose an obstacle to the peristaltic action of the portion of intestine lying above it, which is greater as the paralysed piece is longer." This explanation would hardly appear to be satisfactory under all circumstances. In cases of extensive fæcal accumulation, the colon, or a large segment of it, forms an inert and almost passive tube, capable of but trifling peristaltic action, even if its walls be not actually paralysed. If this paralysis should extend to the small intestine, the phenomena may be explained. As has been already stated, however, the lesser bowel appears to be often capable of emptying its contents even in instances where the colon is already enormously distended, and is practically in the condition of the paralysed segment mentioned by Leichtenstern. Under such circumstances, the engorged colon, with its stagnant contents, must have for no short period of time formed a decided obstacle in the intestinal canal, and yet the condition has not been attended by other than the somewhat trifling symptoms of chronic constipation.

I would venture to think that the outset of acute symptoms in the course of these chronic cases may depend in some few instances upon abrupt occlusion of the colon by torsion or kinking. By such an accident a sudden interruption would be brought about in the line of any peristaltic movement, and an injury would be inflicted upon the intestinal nerve plexus that, in the already critical state of the canal, would form the starting-point for the phenomena of acute obstruction. In another set of cases the acute phenomena are due to the peritonitis that may attend fæcal accumulation, and to which allusion will be made later on. In other instances—and these form, no doubt, the greater number—the acute and possibly final trouble depends upon a distension of the small intestine. The long-tried ileum becomes at last exhausted, the limit of its muscular strength is reached, material accumulates above the valve, a distension of the terminal part of the small intestine follows, and the physical conditions needed to produce symptoms of acute obstruction are present. It is often to be observed in clinical records that in cases of chronic obstruction acute symptoms have followed the administration of a purge. By such means matters are hurried through the small intestine, an accumulation takes place above the ileo-cæcal valve, the ileum becomes distended and

possibly paralysed, and a fresh train of symptoms is prepared. The sudden accumulation forms a burden that is beyond the strength of the overtaxed ileum. It is the last feather, and the bowel succumbs.

A conspicuous feature in long-abiding constipation is the faecal tumour. It is, however, by no means constant, since a considerable accumulation may occur within the colon without a well-differentiated tumour being formed. Faecal tumours are most common in the sigmoid flexure, at the apex of its loop, then in the descending colon and about the flexures, and are least frequent in the ascending colon. The cæcum would appear to be more usually the seat of casual or temporary accumulation than of definite stercoral tumours. These tumours have led to the strangest and most varied errors in diagnosis. It is well to notice that they may change their position. Such change may depend upon an actual progress of the mass along the colon, but as often it is due to a change in the position of the coil in which the mass is lodged. This may be met with when the tumour occupies the centre of the sigmoid loop, or any part of an elongated and distorted transverse colon. In the next place, the tumour may grow. Its increase may depend upon real additions to its bulk, or to circumstances that have rendered its parts more prominent. It may be movable or it may be fixed, and it is well to recognise the fact that it may soften. Its outline varies, and the greatest irregularities in form are met with in such as occupy the sigmoid loop or the descending colon. This irregularity most usually depends upon certain nodular projections that have been moulded within the sacculi of the bowel. The more ancient of the masses may become in time almost encysted. This is again especially to be met with in the sigmoid flexure. The tumour in such a case occupies an enormous sacculus, and may not project sufficiently into the lumen of the bowel to cause a pronounced degree of obstruction. In another class of case it would appear as if a channel for the passage of fæces had been opened up by the side of the accumulation, such channel being probably formed by the partial disintegration of the mass. "Numerous cases," writes Leichtenstern, "are recorded in which old people who have had normal evacuations daily, and even diarrhoea, have died with symptoms of impermeability of the intestine, and the rectal ampulla and colon have been found filled with hard faecal masses of astonishing weight."—*Lancet*, Dec. 19, p. 1134.

66.—ON STRETCHING THE SPHINCTER ANI.

By C. G. WHEELHOUSE, F.R.C.S., Leeds.

By London surgeons, as a rule, the operation of "stretching the sphincter" is neither recognised, nor taught, nor appreciated; indeed, I have heard of its being scouted, as unsurgical and unnecessary. It is well that you should know this, at any rate; for some

of you, who, having seen the infinite good to be derived from it, having seen it regularly practised here, and having arrived at the conclusion that you believe it to be both surgical and valuable, may sometime be presenting yourselves for examination, and may there be called upon, if you aver its utility, to give your reasons for the faith that is in you, and by doing so will show your examiner that, though you and he may differ in opinion, it is not ignorance on your part that leads you to do so, nor want of thought or study, but simply conviction derived from practical knowledge.

Introduced into Leeds by the late Mr. Teale, the practice of "stretching," in preference to "cutting," the sphincter has been upheld for twenty-five years at least, and of late years has rather grown than declined in your favour. The principle upon which it is based is, of course, the one formulated and eloquently preached by the late Mr. Hilton, that the true cure for parts suffering from irritation is to place them physiologically at rest; and the ground upon which we prefer it is, that by it we can attain our end without causing an external wound, and thereby rendering our patient liable to septic poisoning.

Consider, for a moment, the position and office of the sphincter, to guard the rectum from the involuntary discharge or escape of its contents. This, so long as the rectum is at peace, it is capable of effecting easily, perfectly, and without strain, and its ordinary action is neither violent, nor spasmodic, nor irritable. But suppose some sort of irritation to have arisen in the bowel—acute diarrhoea, chronic ulceration, fissure, fistula, or piles—and what will be the state of the sphincter then? In direct proportion to the amount or of the duration of the continuance of the disease, it will become hypertrophied and strengthened to enable it to maintain its power and its office, and, in time, it comes to be enormously more powerful than is natural, or, were the parts in a healthy condition, necessary.

Piles, supposing them to be the cause of the irritation, are perpetually tending to protrusion, and are ceaselessly warring with the muscle; from time to time, when the fæces are passed, the piles are protruded with them, remaining after defæcation in the grasp of the sphincter; they are crushed, and bruised, and become inflamed and painful; and, even though they be released from their imprisonment, as they usually are, by the patient, and are returned into the bowel, it is only to continue there the war with the sphincter and to prolong the agony. Or, suppose that a painful ulcer or fissure exists within the margin of the anus, and immediately within the anus is their most common seat, what will then be the state of affairs? The discharge from an ulcer or from fissures cannot get away, the sphincter will not permit it to do so; it accumulates, and irritates the muscle; this retaliates by increased

contraction ; and thus the war goes on, to the infinite disadvantage of both parties concerned ; the ulcer spreads, the fissure deepens, and the sphincter hypertrophies.

Sometimes, in the case of fistulæ, matters do not become quite so accentuated or acute, for the matter finds a vent in the perinæum, beyond the range of the action of the sphincter, and the direct irritation to the muscle is so much the less ; but in one and all these cases alike, you will have been or you will be taught, and every text-book you read will reiterate the fact, that, for their cure, you may do whatever you will, but you will not succeed until you have put the sphincter at rest, and you are invariably assured that its division with the knife is the only way to do it.

Now this is the point which we in Leeds contest. We assert, and we assert it upon abundant practical experience, that careful, deliberate, and efficient stretching will do all that incision will do, and, doing it without causing any external wound, will subject the patient to far less risk than is possible by incision. Some of you may smile at the idea of there being any risk in so simple an operation as division of the sphincter, but there are such things as accidents—Sir James Paget has most appropriately termed them “catastrophies of surgery,” which ought never to be forgotten, and should be avoided, where possible, by any amount of foresight on the part of the surgeon. One such, in connection with the subject under consideration, happened to me in my early days ; and, so profound was the impression it made upon me, that to forget it even now is quite impossible. For a painful fissure of the anus, I passed a bistoury along its track, divided its indurated base, and, with that, the resisting sphincter underlying it ; but in less than a week my patient, the father of a young family, was dead, having very speedily after the operation been attacked with acute and fatal septicæmia. By stretching in preference to cutting, we have it in our power to avoid this risk, at any rate ; and, in my experience, the best method of doing it, where possible, is with the fingers, or, if need be, the thumbs alone. Let the patient be placed fully under the influence of ether, and then, according to the amount of the hypertrophy, or the degree of resistance in the sphincter, dilate it steadily, either with the fingers, or with some appropriate instrument, until you have overcome all undue resistance, and can leave the anus soft, patulous, and free from irritable tension.

I have heard the question carefully discussed, as to whether the digital or the instrumental method of dilatation is the best. Personally I prefer the digital, because, my object being to tear so much of the muscle across (the mucous membrane over it remaining intact) as shall be sufficient to diminish, without destroying, its whole power, I can, when my fingers are the instrument used,

feel with them when I have done what I wish, and I need do no more. But so great is the hypertrophy sometimes, that the fingers, even of the strongest hands, are quite inadequate to the task of overcoming it. In such cases I usually dilate steadily first with the instrument I show you, till I can withdraw it (wide open) with freedom and without resistance; or, with a tenotomy knife, I divide subcutaneously a given proportion of the hypertrophied muscle; and after that I carry on, where it is necessary, any further dilatation with my fingers.

I commend this proceeding to your careful study and consideration; and the more thought you give it, and the more experience you have of it, the more, I feel confident, will you cling to it as a decided advance in surgery.—*British Medical Journal*, Feb. 6, p. 244.

67.—ON EXCISION OF RECTUM FOR MALIGNANT DISEASE.

By GEORGE H. B. MACLEOD, M.D., F.R.S.E., Professor of Surgery in Glasgow University.

As to the mode of operating, my experience, limited though it be, has taught me a good deal. The fear of hemorrhage has suggested all sorts of expedients by ligature, ecraseur, electric and thermal cautery, &c., but if the knife is only used to incise the superficial tissues, and the finger and handle of the knife, with perhaps the sparing use of blunt scissors, made to do the rest, there need be no fear of bleeding. At the last moment the bowel may with advantage be divided by the ecraseur, but even that is not necessary. I have hardly had to tie any vessel, and have never seen any severe bleeding. I never plug the wound. It is objectionable in many ways, especially from its interference with the drainage, and the retention of filth in connection with the large and absorbent open surface. An important part of the early incision is to extend it forwards and backwards freely in the middle line. Backwards it should go to the tip of the coccyx, which has even been removed to give more room. If the operation be confined to the lower portion of the bowel, however, as I think it should be, such interference with the coccyx is unnecessary. Whenever the incision forwards and backwards, and round each side of the anus, so as to isolate it, has been made, it is a great help to insert four strong whipcord loops with a curved needle, one at each corner as it were (two above and two below), passing from the incision into the interior of the bowel and out at the anus. By knotting the free ends of each of these four ligatures, four loops are made, which give one great power in the subsequent separation of the gut; and when all are united in the left hand, and drawn upon, the bowel can be well stretched and steadied, and so the later steps of the operation much facilitated. Whenever we penetrate the cellular bed outside of the bowel, the finger readily separates the gut

round and round except in front, when there are adhesions there. A catheter inserted into the male urethra, or the finger into the vagina, will define and steady the parts, and allow of the necessary care being taken to separate them. A snip with blunt-pointed scissors will occasionally be necessary in doing this. As the main artery lies in the middle line behind in the wall of the bowel itself, it need not be opened at all till we divide the gut transversely just before removal. With the left forefinger within the bowel, and the right used to separate the parts, while possibly an assistant keeps the loops of cord tense, there is usually very little difficulty in clearing the bowel to a point well above the disease and beyond the utmost deposit which can be distinguished. If close adhesions exist behind about four inches from the anus, there will be a risk of bleeding if we are not careful, as there the main blood-vessel divides; but if a free incision has been made backwards, so as to lay the parts well open, there should be no difficulty in securing it. If the operation be restricted, as I advocate, to the lower portion of the rectum, it will matter little whether the bladder is full or empty; but if a higher portion is to be dealt with, then, as Dupuytren long ago showed, the urine should be retained, so as to raise the recto-vesical pouch.

The ecraseur or the thermal cautery are efficient methods of dividing the bowel transversely when entirely separated all round; and if the former is used the gut should be split and removed in two portions, so as to avoid all annoyance from temporary closure by the action of the chain. The wound is frequently sponged with carbolic solution during the operation, and the pressure of the sponge will stop oozing, especially when the patient's limbs are brought down. Ice might be used, or very hot water, but pressure has always succeeded quickly with me. After a careful examination of the wound, and swabbing it out with the forty grain solution of chloride of zinc, the patient is put to bed with the buttocks raised on a covered pillow. No dressings of any kind are used, and no sutures. Drainage and cleanliness, with rest to the function of the bowel for forty-eight hours, will do the rest. Opium in small doses I always use for obtaining rest to the wound and sleep, and a light but nourishing diet is given. The prolongation of the incision backwards provides an admirable drain, and no tube is needed. Careful and frequent washings with Condyl's fluid and the dusting of iodoform have seemed to me the most useful after-management. The finger will always inform us whether the lower end of the bowel is open and the drainage clear, but the less the wound is irritated the better. If bleeding, which could not be commanded by ligature and temporary pressure, were to take place, I would put a large tube such as is occasionally used after lithotomy into the bowel, so as to secure the free escape of flatus, and then pack carbolised sponges or gauze or marine lint

round it, but it is barbarous to close up the passage hermetically, as has been done. The catheter will be required at short intervals, but days may pass before the action of the bowels be sought for. After a week any mild laxative may be used. The wound heals up with remarkable quickness. Whenever undue tightness occurs in the passage the finger or a tallow candle gently passed, under chloroform, will restore its freedom. This should be done at intervals. A backward division of the cicatricial tissue might be employed if, after a sufficient interval to test the condition of the aperture, such a step was found necessary. It is only when the whole circumference of the bowel has been removed that the contraction is severe. It is very curious to observe how the lower end of the bowel seems to approximate to the skin as the healing goes on, and how little deficiency there is in the parts and in the function of the sphincter. The incontinence gives place to retention if the contraction is great, but the remarkable way in which the patient recovers the power of retaining and evacuating his fæces at will is particularly interesting. There has been much discussion as to how this takes place when both sphincters have been removed. It seems probably due to the cicatricial tissue giving support to the lower fibres of the bowel attaining greater power of expulsion.

The relief after excision is very great, and if the operation be performed early and be complete, and the disease prove to be epithelial, the hope of long or even permanent good is considerable; anyhow, if two years be the average time of survival in cases not interfered with, I think well selected cases carefully operated on should considerably prolong life. That pain is relieved, comfort in every way promoted, hope revived, and very little danger incurred by the operation itself, I think must be conceded.

I have said nothing of colotomy in any of its forms in connection with cancer of the rectum. Its relation to the disease is now fairly well defined, and does not affect the question of excision in the conditions I have been considering as fitted for operation. To obviate obstruction; to relieve cancer in the higher portion of the rectum; and even when in the lower part, if the mass of disease is opened up by ulceration and cannot be all removed, colotomy is invaluable; but these are not the cases in which I have advocated excision. So, too, it is no part of my intention to speak of the backward division of the bowel to relieve malignant stricture, or the scraping or tearing away of fungous masses, as these are not cases in which excision can be of service.

[Only brief abstracts of the records of Prof. Macleod's seven cases can be here reproduced. (See also *Synopsis*.)]

Case 1.—M., æt. 54. Half-an-inch from the margin of the anus hard round masses were felt projecting into the bowel; but, except at one spot, the mucous membrane was unbroken. A deep, hard-

edged ulcer passed deeply into one of the nodules. Three and a-half inches of the bowel were removed. He was free from all symptoms for 9 months. Died of return growth 15 months after the operation. *Case 2.*—F., 39. Fungating mass about the size of an orange on posterior surface of gut, $2\frac{1}{2}$ inches from the anus. Total removal. Tumour a typical cylindrical epithelioma. Patient known to be well three years after. *Case 3.*—M., 57. Disease began $1\frac{1}{2}$ inches from anus and involved the bowel all round, but especially behind. Total removal. Died of recurrence in 3 months. *Case 4.*—M., 70. Fingers easily passed beyond upper limit of disease. Total removal. Died in twelve months, with little or no suffering. Growth had returned. *Case 5.*—F., 45. Within the anus there was at least half-an-inch of sound mucous membrane, and then round, hard, smooth tubercles were felt on the posterior and right lateral aspects. The finger reached well beyond the disease. Whole cylinder of bowel removed. She was well six months afterwards. *Case 6.*—M., 37. Disease extended from two inches to as far as finger could reach. The whole disease was removed without difficulty. The growth had returned in 8 months. *Case 7.*—M., 57. An inch and a-half from the orifice there were nodulated masses on the left and posterior surface of the bowel, the rest of the circumference was apparently sound. Whole of diseased bowel removed. This patient committed suicide three months afterwards. A return growth was found post-mortem.—*Glasgow Medical Journal*, Nov. 1885, p. 333.

68.—ON THE LIMITATIONS OF COLOTOMY IN DISEASE OF THE RECTUM.

By CHARLES B. KELSEY, M.D., New York.

[Dr. Kelsey's paper is devoted mainly to a criticism, on the whole destructive, of Mr. Bryant's dictum laid down in his Harveian Lectures (1884), that "In all cases of cancerous stricture of the rectum or colon, including the annular, which are not amenable to lumbar *colectomy* or anal excision, right or left lumbar colotomy is strongly to be advocated, with the well-grounded hope of relieving suffering, retarding the progress of the disease, and prolonging life even for five or six years. To secure these advantages it is necessary for the operation to be performed before the pernicious effects of obstruction occur." Dr. Kelsey opens his paper with the narrative of a case of singular interest. The leading facts of the case were as follows. A young man, aged 30, had for a year suffered from attacks of abdominal pain with diarrhoea, which were for a time always relieved by rest, morphia, and low diet. After a time rectal examinations revealed some enlargement of the prostate gland, supposed to be of a malignant nature. Later on symptoms of complete obstruction supervened, were relieved, and

recurred, with a fatal result from perforation of the ascending colon. The total duration of the case was twelve months, from the onset of urgent symptoms. The autopsy revealed, besides the perforation, a cancerous stricture of the sigmoid flexure, which, though never felt by the hand, had been suspected during life, and disseminated cancer of the peritoneum. This case forms, as it were, Dr. Kelsey's text for his strictures upon Mr. Bryant's teaching, and in commenting upon it he says, "Suppose now a colotomy had been done, how much would have been gained? The diagnosis, though correct, was not complete. The growth in the sigmoid flexure was only suspected, the generalisation of the disease not even that. Up to the time when perforation occurs, there was no pain which could not be relieved by morphine, which the patient used according to his needs, being urged to take it freely. It seems safe to say that, without regarding the immediate danger of the operation, it could hardly have prolonged life to any extent. Even if it had, is life under such circumstances so much to be desired?" Mr. Bryant's figures then come more directly under review by the author, as follows.]

Out of 60 cases for cancer 26 died within the first month, and 18 within the first week. These he collects together under the heading of "Too-Late Cases." Why? except in two cases where complete obstruction is mentioned to have existed for weeks, and in two others where the bowel was found ruptured above the stricture, no reason appears in the history of the cases as given. Is it to be concluded that, in every fatal case dying within four weeks of the operation, the result is because the operation was done "too late"?

Did the cases die of the disease in spite of the operation, or of the operation itself? The arbitrary character of this thirty-day limit is shown plainly by the fact that in the first table of "too late cases," or those that died *within* 30 days, one is recorded that sank on the 27th day; and in the second table of cases that recovered from the operation one is reported that sank *on* the 30th day.

From a mere table of cases, without any histories except the most meagre facts, it is of course impossible to tell what reasons Mr. Bryant may have had for judging that these cases were all operated upon too late except the fact that they died from the operation. Doubtless they were good ones. If good ones, they should be evident before operating, and if so why operate? In only a few cases does the post-mortem seem to show that the operation was too late; in almost all it would seem that the condition was as well known before as after death. Take the numerous cases which are marked as follows: Stricture of rectum, sank on 2nd day, sank on 4th day, sank on 5th day, &c. There is no reason to show why they sank. Would none of them have died had the operation been done sooner? The criticism on the group is simply this: If in these cases the constitutional or local state was such that before

the operation it could be said, If this case dies it will be because the operation was done too late, a good many surgeons might hesitate to take the risk of shortening the unknown number of days or weeks which might still have been left to the sufferer who must soon die at any rate. If, on the other hand, the condition was such that the chance of recovery seemed good and yet they died, may it not be asked whether the death cannot fairly be attributed to the fact that the operation was done at all?

There is another way of looking at this table. 18 cases of cancer of the rectum died within a week of being operated upon, and 26 within the month. What is the total number of days of life which were lost by an attempt to gain more? How long might any one of them have lived if not operated upon?

Passing now to the 34 of the 60 cases that recovered from the operation: concerning these, Mr. Bryant makes three claims, some of which will be admitted readily enough, others not so readily. His second one will pass with the least question: that the operation relieves the pain caused by the passage of fæces through the narrowed and probably ulcerated lumen of intestine, and the ineffectual efforts of the bowel above to pass on its contents. In certain cases this is undoubtedly true, but in cancer of the rectum the passage of fæces often causes little pain to the end. Not in every case, by any means, do we find either much ulceration or any obstruction. The disease may run its course, become generalised, and kill, before a scirrhus mass will ulcerate or cause stricture. In such a case the pain is not due to the passage of fæces over the disease, or to the act of defecation itself, and can scarcely be relieved by colotomy. In any case in which the condition mentioned obtains a sufficient extent that colotomy, with its risks of immediate death and its subsequent annoyance preferable, the operation is certainly indicated, is considered, provided nothing else is believed to be as good or better. Among the 34 cases we find a few where this condition is plainly stated. Case 6, "extensive rectal ulceration, supposed to be cancer and stricture;" 7 and 14, "cancerous stricture of rectum and anus with fæcal fistula;" 9, "cancerous stricture of rectum with recto-vesical fistula." In none of the others can we judge of the exact condition except by the diagnosis of cancer.

Another point claimed by Mr. Bryant is that colotomy retards the progress of the disease by removing from its presence a cause of irritation, the passage of fæces. His opinion on this point is of the greatest value, and will go far to offset the opinions of those who disagree with him, but, in all respect, is it not simply an opinion, and how can the matter be proved? At first sight the statement would seem reasonable and probable, but to get any further than this is exceedingly difficult. A sufficiently large number of cases carefully selected as bearing on this special point might be of help by enabling us to deduce an average duration of life; but the cases would need to

be selected ones. Not every case of cancer of the rectum would serve for this purpose, but only those in which the passage of fæces plainly served as a source of irritation. From these would need to be deducted all those in whom colotomy was fatal within a short time, as not bearing on the question. The remainder might be compared as to length of life with an equal number of the same class of cases on which no operation had been done, and the result would have as certain scientific value, and yet would be of very little use as applied to any particular case. This I believe has never been done, and it is perhaps not too much to say that the question whether colotomy does retard the growth of cancer of the rectum is still a question.

Mr. Bryant's third point is that colotomy prolongs life, "probably for one or two years, and possibly for four or five years," and at the same time saves the patient from a painful and miserable death, that from obstruction; whilst, at the same time, it leads the patient to his last home in as painless and quiet a way as can be desired. There is much truth in this, and yet it is well to see just how much. In the second table of 34 cases of cancer, 8 left the hospital convalescent, and the length of life after the operation is not stated; and one was alive five years after, but upon this one Mr. Bryant himself casts a doubt by entering the diagnosis as "supposed cancer of the rectum. Symptoms 18 months. Blood and mucus," so that it probably would not be wrong to drop it out; thus leaving 25 cases in which the length of life is known. Of these 25, 9 died within six months, and 16 within a year, while 4 more dropped off within 18 months. There is one case of 21 months, one of 26, one of 33, and one of 41. This, it must be borne in mind, is in selected cases, in those in whom the operation was not immediately fatal. The bad cases (nearly 50 per cent. of the whole) are thrown out beforehand.

Do these figures justify its being accepted as a rule that in cancer of the rectum colotomy prolongs life probably from one to two years, and perhaps four or five? Out of 60 cases, 18 are dead in a week, 26 in a month, 35 in six months, and 42 in a year, 8 are not followed up, and 1 is doubtful in diagnosis.

It still remains that in certain cases colotomy will do all that Mr. Bryant claims for it. It will prevent death from obstruction, and it will give great relief from pain. It is a most valuable palliative measure in some cases of cancer of the rectum—cases beyond the reach either of excision or division, and in which all other measures have failed. At the same time it is a dangerous operation, and it is by no means proved that it prolongs life in any other way than by avoiding or relieving obstruction in those cases (and they are only a certain definite proportion of them all) in which obstruction occurs.

I do not wish to be considered as arguing against colotomy *in its place*. And in closing let me say that while Mr. Bryant has so

ably shown from his own large experience what can be done by colotomy, I have simply tried to show what can be done in a few cases without. His article is one of the most valuable contributions to the subject ever made, and cannot fail to be so considered and prized accordingly. It is far from my purpose to criticise the article, or to detract from the value of one of the certain means by which the pain of an incurable disease may be alleviated, and a life sometimes prolonged. In emphasising one method of treatment, Mr. Bryant has not, in his own mind, or his own practice, slighted others; but it is possible that this may not be the effect upon some of his readers. Colotomy is a much more attractive surgical operation than keeping up gradual dilatation for a number of years, especially in dispensary practice; but because Mr. Bryant has found 82 cases in which it was necessary, it is not proved to be either necessary or suitable in the first case of rectal stricture met with by another.

What, then, are the indications for colotomy?

1. In congenital malformations of the rectum or anus in children in which a tentative operation in the perineum has failed to reach the rectal pouch.

2. In intestino-vesical fistulæ.

3. In tumours occluding the rectum which cannot be relieved by any other means—dilatation, division, hot water, or electrolysis.

4. In non-cancerous, simple or specific stricture and ulceration of the rectum (with or without fistulæ), where the disease cannot be relieved by proctotomy or dilatation, or division of the fistulæ, and local treatment of the ulceration.

5. In cancer where the disease can neither be removed nor the passage re-established, and where death is probable from obstruction—except in cases where the immediate dangers of the operation more than counterbalance any good likely to be gained by it.

6. In volvulus or intussusception of the colon or sigmoid flexure, where reduction by the aid of laparotomy has been found impossible.—*American Journal of Med. Sciences*, Oct. 1885, p. 348.

ORGANS OF URINE AND GENERATION.

69.—ON URETHRAL FEVER.—DEATH FROM CATHETERISM.

By R. A. KINLOCH, M.D., Professor of Surgery, Charleston.

[The following remarks are taken from a lecture based upon a fatal case of urethral fever. The patient, a man suffering from stricture of the urethra, died thirteen hours after the passage of a steel sound (No. 24 French). The temperature rose to 106° F. three hours after the operation, which was unattended by any difficulty or mishap. Post-mortem examination failed to reveal

any morbid condition in any organ, except slight superficial laceration and submucous extravasation in the bulbous urethra.]

When a false passage is made you might expect traumatic fever to supervene, or urinary infiltration to result, and finally death may be traced to such lesion or condition. But there is no very sudden death from such accidents. Suppuration and irritative fever, or septic trouble, will precede death and indicate the initial lesion. In cases like the one we are considering, the rapidity with which the result was reached points clearly to a nervous implication. The death is almost like that due to shock after operations; but the high temperature points to something more. Can septic trouble supervene and kill so rapidly? This is difficult to conceive of. If nerve pathology was not yet so obscure, we might better interpret the phenomena met with and explain the result. As it is, I can only remind you of some facts which go to show how intimate is the sympathy between the urethra and the sympathetic system of nerves. A man in robust health often faints when a bougie is passed for the first time. Let me advise you, unless you know your subject, always to place him in the recumbent position when you introduce a bougie or a catheter, for the reason just given. The fainting under the passage of the instrument clearly indicates a reflex nerve influence. You can imagine that, if this should be carried to an extreme degree, death might result. Again, we not uncommonly see what is called urethral fever follow the passage of a catheter or an operation on the urethra. There is a chill, followed by fever, and this latter by a profuse sweat. Sometimes these symptoms are repeated again and again, like in a malarial intermittent. One condition is often mistaken for the other. I have never seen a fatal result in this variety of urethral fever, where the paroxysmal character was so defined, but I have at times felt alarmed for the safety of the patient.

When urethral fever follows catheterism, or when a decided chill is the consequence, I would caution you as to the repetition of the operation. You should be careful and use all the means we possess for controlling the irritability of the nervous system. Give morphine with atropine, or chloroform, or aconite, in advance of the operation. Use cocaine to modify the sensibility of the canal, and all the time examine carefully as to the condition of the kidneys. I cannot say that I have seen any marked advantage from quinine used in this connection although I habitually prescribe it. Now, if our unfortunate case is to be classed as one of urethral fever, then we must call it the *fulminating* form, in contradistinction to those milder cases that I have referred to. The suddenness and rapidity of this case were indeed terrible. We can scarcely be more impressed or startled with the prompt collapse or death that comes of violent forms of cholera. It matters but little whether we conceive a poison operating through the blood, or whether

we infer a more direct influence spent upon the great nervous centres.

The autopsy revealed the fact that both the liver and spleen had suffered from the influence of malarial disease. But I cannot assume that this accounts for the fearful end. We know of like results where no such complication existed. The shock, heart failure, and death following operation most impress us, and illustrate cause and effect. I have regretted that I did not administer an anæsthetic before operating. This may, in such cases, afford some protection to the nervous system.

Let me give you one or two practical hints as to catheterism. In this operation there is often exhibited very bad surgery. But few men are adroit with the use of the instrument, and in the hands of many it as often perforates the urethra as it goes smoothly on into the bladder. If the beak is elevated too soon, it wounds the anterior part of the canal in front of the triangular ligament; or if it is urged along the floor of the canal and too much toward the rectum, the posterior wall is perforated at the bulb. You should let the instrument go easily on by its own weight, as it were, the beak close to the upper wall, and only when its progress is stopped should you gently depress the handle and cause the beak to follow the natural upward curve of the deep portion of the canal. I have had some curious experience in urethral surgery. Only yesterday I passed into the bladder, without difficulty, a No. 20 F. catheter in the case of a man whose bladder had been aspirated above the pubes to relieve retention. I once saw a perineal section that had been made by a reputedly good surgeon of this city, for an impassable stricture. Following the section, a large catheter had been passed into the urethra and up between the bladder and the rectum. There the instrument had remained for many days, with the belief that it was in the bladder. The urine had continued to pass alongside of the catheter, but not through it. There was abundant suppuration, and yet the man survived after I had removed the instrument, and afterwards inserted it into the bladder through the natural way. You may ask me whether there is no great danger from the false passages. There is always some danger, but fortunately the perforations are made from before backwards and upwards. This, to a certain extent, guards against urinary infiltration, and admits of drainage in the event of ensuing suppuration. But where a false passage results from ulceration behind a tight stricture, the urine necessarily enters little by little, and we have the starting-point of fistulous tracks which slowly extend, perforate the tissues in numerous directions, and open on the perineum or on the cutaneous surface of the scrotum. When using the catheter, you find that it has wandered from the right direction, and has not entered the bladder, and you find much bleeding from the urethra, you can

infer that you have perforated the walls of the canal. Now you should withdraw the instrument, keep the patient at rest for some days, watch his symptoms, and do not, unless there be urgent retention, attempt to pass another instrument for many days.—*Philadelphia Med. News*, Dec. 5, 1885, p. 617.

70.—ON SUPRA-PUBIC LITHOTOMY.

By Sir H. THOMPSON, Surg.-Exty. to H.M. the King of the Belgians;
Professor of Surg. and Path., Royal College of Surgeons;
Consulting Surgeon to University College Hospital.

[Sir Henry Thompson, after reference to the difficulties and dangers of the method of Peterson (see *Synopsis*) proceeds to describe the operation as follows.]

I may say at once that it is a very simple proceeding and easy of performance; much more so than is lateral lithotomy. A good deal has been written, as it appears to me, with a tendency to associate unnecessary complications with the new method, to induce the surgeon to take certain needless precautions in the way of preparatory treatment in relation to the practical operative proceeding and to the after-management. No previous preparation of the bladder is necessary. Attempts to increase the capacity of the viscus by preliminary injection, which some surgeons have made, almost invariably fail to accomplish the object aimed at; on the contrary, they increase already existing irritation. Furthermore, a capacious bladder is by no means necessary. An empty condition of the rectum having been insured by enema, the patient may lie on his back on a table, with his head and shoulders slightly raised. As soon as he is unconscious I roll the empty india-rubber bag into a cone, grease it well, and introduce it into the rectum, taking care that it shall be completely above the grasp of the sphincter. Then, about twelve or fourteen ounces of water are gently thrown into the rectal bag in the case of an adult; I prefer to make this the first step of the proceeding. I next introduce a flexible catheter into the bladder, and inject slowly and gently six, eight, or ten ounces, feeling my way carefully, according to the resistance perceived in the act, and the degree of eminence observed above the pubes, almost invariably obvious to the eye as well as to the hand, taking care to avoid force. The rectal distension is essential; the vesical need not be considerable. The fluid used should be a mild antiseptic solution, such as one of boracic acid, which is often adopted. Employing carbolic acid solutions uniformly for most purposes, I generally inject one not exceeding in strength 1 part in 1000. The catheter being withdrawn, the base of the penis is firmly ligatured with an india-rubber tube. Palpation above the symphysis now demonstrates the position of the bladder, most of it lying above the brim of the pelvis in the form of a rounded

ball. Having taken my place by preference on the patient's left side, a vertical incision of the skin and cellular tissue strictly in the median line over the salient bladder is made, about three inches long or a little more, overlapping the hard upper border of the symphysis below. The skin may be conveniently divided by transfixing a fold lifted up for the purpose; the precise method, however, is not material. This being done, I lay aside the knife and prefer to use only the right index finger-nail for separating the tissues down to the linea alba, which is very easily accomplished. A few fibres of this may be raised with the artery forceps and a small opening made with the blade of a scalpel so as to admit a wide flat director, to be carried beneath, on which to divide that structure upwards and downwards for about an inch and a quarter in each direction. The finger-nail is then again employed, separating the muscles, &c., in the median line until another fibrous layer is apparent, the transversalis fascia, and it is divided on the director precisely as before. If the stone is large, the insertion of a rectus muscle into the pubic ramus on each side may be divided to a small extent. The yellow fat covering the bladder now comes into view. This should be carefully separated in the middle line by scraping with the nail from behind the symphysis pubis in the direction upwards, so as to place the peritoneum out of reach should it be near, until the prominence of the distended bladder is easily felt, and perhaps even the stone, as it is covered only by the vesical wall, beneath the operator's finger. Veins appearing hereabout may give much trouble by bleeding if the knife is employed; but for this, however, there is no occasion; by scraping with the nail upwards and downwards and pushing or drawing them carefully aside, they may be safely removed from the line of action until the fibres of the bladder are exposed. After due examination a small curved hook should be carried through the vesical coats, when a little fluid is seen to issue by its side, proving that the bladder has been fairly entered. Maintaining the hook elevated by the left hand, a scalpel in the right makes a small puncture by the side of the hook (which still retains its hold) just sufficient for the index finger to be introduced and partially stop the outflow of urine now rapidly issuing from the orifice. A few moments will suffice for the finger to determine the size, form, and position of the stone, and to decide how large an opening is necessary for its removal. I make the opening by introducing the left index finger by the side of the right, separating the two fingers gently so far as may appear sufficient to accomplish the purpose, thus avoiding the use of the knife, and with it sometimes troublesome hemorrhage. When a tumour has been present, I have passed a loop of stout silk through each margin of the vesical opening in the same manner as we have been accustomed to do in the borders of the cut urethra when opening it from the perineum in front of

an impassable stricture. Each loop gently held up by an assistant on either side gives easy access to the bladder, which may be further aided by letting some of the liquid issue from the rectal bag. For the large hard calculi for which I have chiefly adopted the operation the use of the silk is unnecessary. The extraction of the stone may be done in the usual manner by means of forceps, but I prefer to effect it, if possible, by using the two index fingers as blades, while the two hands are locked together by interclasping the other fingers of each. The bladder is now ascertained to be free from other contents, and little else remains to be done. The open wound will give issue to the urine, and I have seen no danger of infiltration if the wound is left quite free for the purpose. The only attempt I have made to limit its extent has been by introducing one large suture about an inch below the upper angle through the abdominal walls; I have never used a single stitch in the bladder; and whether even the former is serviceable or not may be questioned. I have thought it desirable to leave five or six inches of large india-rubber tube for the first twenty-four or forty-eight hours to ensure a free opening; and sometimes, also, a soft full-sized catheter in the urethra. The patient has generally been relieved by the removal of these in two or three days. He lies on his back during the first twenty-four hours, and then on each side alternately for six hours at a time, and all the urine runs easily in this way from the wound, and excoriation of the skin is prevented by one side only being wetted for that short period at a time. No other dressing than layers of lint soaked in weak carbolic acid solution, or in one of boracic acid, has ever been employed by me. Every patient has made a good recovery except one—the man of seventy-three years—who died, as before said, of sheer exhaustion on the ninth day. Among the eight cases one artery only was tied, and no torsion or other method was required, and there has been no venous hemorrhage. This result I attribute to the substitution of the finger-nail for the knife in the division of all tissues except the three layers named—the skin, the linea alba, and the transversalis fascia. The nail not only serves to guard the veins as above said, but to push up the peritoneum, should it be in the way at the upper angle of the wound; but this, I believe, it rarely can be if the rectal distension has been properly made. I am not aware whether this valuable agent, the finger-nail, has been thus systematically employed for the purpose before my own first experience of it in the case of July 2nd, 1884, above referred to. The fact of its use then is recorded in this journal (October 11th, 1884) in my account of that case. I have since designed a little ivory instrument to take the place of the nail, which I propose to describe shortly.

Finally, I am satisfied that the operation described is well adapted for tumours of the bladder when ascertained to be of large size, and when they are not merely simple polypoid growths

of a simple kind, which are easily removed through the perineal incision. I adopt, also, a modification of the proceeding for those cases in which a perineal exploration has first been made, and in which therefore the bladder cannot be distended; a modification equally applicable to the cases of women in whom the same condition practically exists.—*Lancet*, Dec. 5, 1885, p. 1032.

71.—ON CERTAIN MODIFICATIONS OF THE SUPRAPUBIC OPERATION FOR STONE OR TUMOUR OF THE BLADDER.

By Sir HENRY THOMPSON, Bart., F.R.C.S.

There is a modification of the suprapubic operation necessary when dealing with the female bladder, since it cannot, without very special apparatus, be permanently distended like that of the male. And the same condition occurs in that of the male also, if, after opening the urethra for the purpose of exploring the bladder for tumour, and finding one, it is deemed necessary immediately to operate above the pubes. This may happen when by means of the urethral opening it is discovered that the tumour is too large to be removed by the perineal route, or is so situated that it can be only safely attacked from above. In either case the distension of the rectum is to be fully made as usual; but as no fluid can be securely retained in the bladder in the circumstances described, the incision must be made on a director previously passed into the viscus. This director should be in the form of a well-curved hollow steel sound, with an open end, neatly closed by an olivary bulb attached to a strong stylet running through the instrument, and capable of being fixed at the handle. Fig. 1 shows the sound, and Fig. 2 the stylet, with the bulbous end. At the extremity of the sound, a wide open slit, about three-quarters of an inch long, is made in the concave aspect. See Fig. 3, with the bulb in place. Fig. 4 shows the end of the instrument when the bulb is withdrawn. (See opposite page.)

The rectum being distended as before directed, no injection of the bladder takes place, but the sound containing the stylet is passed and retained in place by an assistant. The dissection is now carried on in the median line, as usual, until it nearly reaches the bladder, when the olivary end is plainly distinguished, and the stylet is withdrawn by the assistant. The end of the sound and the slit therein are now easily felt through the tissues by the index finger. When the fibres of the bladder are laid bare at and around this spot, the hook is passed deeply into the slit, so as to take up a portion of the vesical coat and hold it securely, while it is perforated by a scalpel in an adjacent spot. By this means the bladder is prevented from collapsing and slipping down out of sight or reach—an accident very apt to occur and to embarrass the operator if he opens the viscus on the end of an ordinary sound,

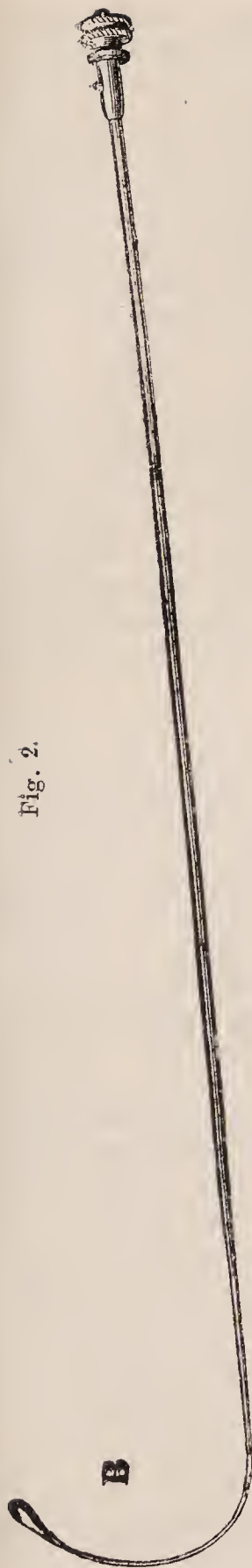


Fig. 2.

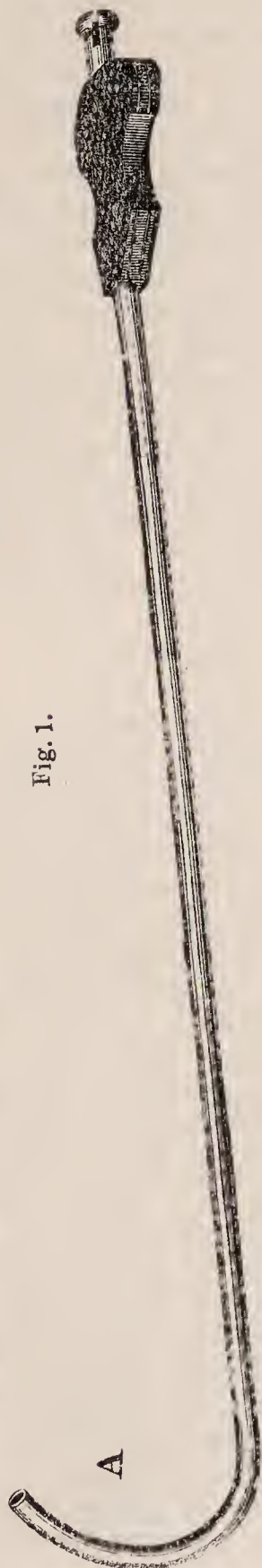


Fig. 1.

Sir H. Thompson's Instruments for the Suprapubic Operation.

Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



which usually emerges by the opening, while the bladder disappears by contracting and shrinking around the instrument. In these circumstances it has often been found difficult to introduce anything into the cavity by the side of the sound, a dilemma which the little contrivance proposed above efficiently provides against. In the old method of operating on a staff, without distension of the rectum, this accident not infrequently happened, and I have little doubt that the endeavours to re-establish the route into the bladder sometimes occasioned disturbance of the cellular connexions around the neck, and so induced the infiltration there, formerly said to have been one of the risks of the operation.

Reverting to the use of the index finger-nail as a divider of tissue in the operation, and its marked superiority to the knife, it has occurred to me that a more generally applicable instrument might be constructed in ivory. Accordingly, Messrs. Weiss have made one to my design, of which the woodcuts Figs. 5 and 6 give a representation on a scale of exactly half the linear measurement. The lower or slightly convex end seen at Fig. 5 is very finely serrated, and acts as an artificial finger-nail; the hooked termination for drawing aside a vein is shown in a lateral view of the instrument at Fig. 6.—*Lancet*, Jan. 2, 1886, p. 6.

72.—NEW PROCEDURE FOR REMOVAL OF SMALL CALCULI FROM THE BLADDER IN MALE CHILDREN.

By Professor ANNANDALE, F.R.S.E., Edinburgh University.

Although lateral lithotomy is a most successful operation in male children, it must, I think, be acknowledged that, in the case of small calculi, this operation is a severe one, considering the small size of the irritating body to be removed. Erichsen remarks, "Very many boys are cut for stone every year, and recover; but I scarcely recollect to have met with a middle-aged adult who had been operated on in childhood."

It is also well known to surgeons that lateral lithotomy in children has some special risks connected with the operation itself, and depending upon the tender nature of the urethral structures and position of the bladder. It is quite possible to seize and crush a stone in the young male bladder by means of a small lithotrite, but it is not so certain to insure the complete removal of the fragments after the proceeding, as evacuating catheters are still made too large to pass along the young male urethra. I believe that this difficulty may be overcome, and that in certain cases lithotrity may be thoroughly and successfully carried out even in children.

Sir Henry Thompson, in advocating lateral lithotomy as the rule in young males, remarks, "The exceptional cases are those in which the stone is only too large to pass by the urethra, and therefore small. For these, there is no occasion to perform lithotomy.

Opposed as I am to lithotripsy in children as a rule, for reasons already named, I nevertheless believe that, when the stone is so small as to be easily pulverised at a single crushing by a slender lithotrite, it is the simplest and best method of proceeding, and that when the stone can be well and easily crushed in two sittings it may be admissible." Unless the fragments of the crushed stone can be completely evacuated at the time of the operation, I am of opinion that lithotomy is still preferable to lithotripsy in children, even in cases where the stone is small.

In the meantime, it has been my wish to discover some method which would be more simple, and cause less injury to the urethral and vesical structures in the case of male children, than the ordinary operation of lateral lithotomy, more particularly when the stone to be removed is limited in size. In the following case, I practised what I believe to be a new procedure, and have hopes it may prove to be a useful addition to our means of treatment.

Case.—A boy, aged $4\frac{1}{2}$, was sent to me by my friend Dr. Hunter, of Linlithgow, on account of symptoms of stone in the bladder, which had existed for about a year. The usual symptoms were present and well marked, and, upon sounding him, I detected a small and light stone. On December 10th, I put him under the influence of chloroform, and dilated his urethra by passing Nos. 6, 7, 8, and 9 silver catheters in succession. The first three passed readily, but No. 9 was slightly grasped in its passage along the urethra. Before removing this last catheter, four ounces of antiseptic fluid (corrosive sublimate 1 to 4000) were injected through it into the bladder. This catheter being withdrawn, a small lithotrite, having a diameter about equal to a No. 8 bougie, was introduced along the urethra into the bladder. After a little careful manipulation, the stone was seized, and fixed between the blades of the instrument. It was then found that, by depressing the handle of the lithotrite, its vesical extremity, together with the stone, could be readily felt through the abdominal wall immediately above the pubes. The lithotrite being held in this position, a small incision, an inch in length, was made in the middle line of the abdominal wall over the pubes, and for a short distance above it. The various tissues were divided, until the wall of the bladder was exposed at the point against which the blades of the lithotrite and the enclosed stone were pressing. A little further depression of the handle of the lithotrite caused the extremity of its blades covered by the stretched wall of the bladder to protrude through the wound in the abdominal wall; and a small incision having been made through the wall of the bladder, by cutting upon the extremity of the lithotrite, the blades of the lithotrite, together with the stone, were pushed through the wound. The stone was here extracted from between the blades of the lithotrite; and the open extremity of a No. 7 india-rubber catheter was

seized and drawn into the bladder and along the urethra as the lithotrite was removed, thus leaving a drain for the urine to escape from the bladder. The wound in the abdominal wall was closed by means of two horse-hair stitches, and a drainage-tube introduced into it so as to aid the escape of any urine which might flow from the bladder-wound. Irrigation with corrosive sublimate solution (1 to 2000) was employed during the operation, and the wound and parts around were covered with a dressing of corrosive sublimate wool. The stone removed was about the size of a horse-bean, of uric acid formation. For the first thirty-six hours after the operation, the urine was slightly tinged with blood, passed principally by the abdominal wound; but, after this, it flowed through the catheter, which had been secured in the bladder. Forty-eight hours after the operation both drainage-tube and catheter were removed, the patient not having had the slightest bad symptoms. For twelve hours after the removal of the drainage-tube and catheter, the urine came by the abdominal wound; but, after this, it passed almost entirely by the urethra, and the patient was running about the ward, perfectly well, on the tenth day after the operation.

It may be said that this is simply a supra-pubic lithotomy, and so it is; but I maintain that it is a much less serious proceeding than the ordinary supra-pubic operation, as the bladder is scarcely disturbed, and the wound made in it is very limited. Its advantages over lateral lithotomy are:—1. That the urethra, prostate, and neck of the bladder are left uninjured; 2. That it is a much more simple proceeding, and does away with the principal risks which have occasionally been encountered in performing the operation on children.

I confess that it requires a little manipulative dexterity to seize a small stone in a male child's bladder; but no greater dexterity is required in doing so than what every surgeon, professing to be an operating surgeon, should possess.

It is possible that in certain cases the same principle might be carried out, by bringing the stone to the neck of the bladder, opening the prostatic part of the urethra, and thrusting the blades of the lithotrite and contained stone into the perineal wound; but in the case of children there can, I think, be no doubt that the supra-pubic method is preferable.—*British Med Journal*, Jan. 2, p. 8.

73.—ON THE CAUSATION AND NATURE OF HYPERTROPHY OF THE PROSTATE.

By REGINALD HARRISON, F.R.C.S., Liverpool Royal Infirmary.

In a paper recently published on some Changes in Form of the Prostate and Floor of the Bladder, I have shown that the inter-ureteral bar of muscular fibres so frequently met with in cases of

enlarged prostate is to be regarded as the outcome of efforts, by the development of extraordinary agents of micturition, to expel urine from a part where it is apt to lodge and cause inconvenience. In connection with these investigations, I have met with instances where an unusually depressed state of the floor of the bladder, or trigone, appeared to me to have existed previously to an enlarged prostate; in fact, that a condition of residual urine preceded, and was not the sequence of, enlargement of the gland. The trigone, or floor of the bladder, in addition to being a highly sensitive part, is peculiar in that it contains but few muscular fibres in its composition; muscle in abundance may be found as low as a line corresponding with the openings of the ureters, and marking the superior boundary of the trigone, and below in the prostate; between these two points the power of muscular contraction can hardly be said to exist. Assuming that, from any cause, such as long retention of urine, habit, position of the body, or the weakness connected with advancing years, the trigone, or non-contractile part of the bladder, becomes permanently depressed or altered in form, so that the person finds himself unable to get rid of the last half-ounce or so of urine, the effect will be frequently repeated expulsive efforts in all the muscles immediately adjacent to a part which, by reason of its connexions and structure, has no power of exercising contractility. This will eventually lead, as I have shown, to the hypertrophy of the muscular fibres between the orifices of the ureters—the inter-ureteral bar—as well as, I believe, to that of the muscular fibres so largely entering into the composition of the prostate. In this, I submit, will be found the immediate cause of prostatic hypertrophy. The change being an example of an hypertrophy, its production by conditions favouring the formation of over-growths observed in the body seems to be reasonable. Such a view, as applied to the large prostate, is strengthened by certain clinical observations. A frequent desire to empty the bladder is constantly met with in what is regarded as the earliest stage of prostatic hypertrophy, and long before the gland has assumed any considerable size; the more frequent the calls are to urinate, the more rapidly does the prostate grow, and all circumstances which tend to increase irritability of the bladder may be said to favour the development of this condition. Lastly, the only means which are known to have caused the opposite state—namely, that of atrophy, to be engrafted on the hypertrophied gland—are those which for a considerable time converted a muscular and physiological act into a purely mechanical one; for instance, the case I published some years ago (since repeated with equally satisfactory results), where, by the wearing of a cannula inserted through the perineum, the process of micturition was reduced to the mechanical act of turning a tap on the part of the patient. Though regarding senile enlargement of the prostate as

an hypertrophic change, I was at a loss to explain how it was induced until I met with instances where, from the conformation of the bladder, an irritating condition of residual urine seems to have preceded, and not to have been the consequence of, an enlarged prostate. Instances in practice are not uncommon in elderly males, where all the symptoms usually assigned to prostatic enlargement are present, without there being evidence, beyond the presence of some residual urine, that any physical change in the gland has taken place.

I have frequently noticed that condition of unnatural contractility about the muscles connected with micturition, to which Sir James Paget's expression of "stammering with the urinary organs" may be applied, precede prostatic hypertrophy. I have a case under observation, where a locomotive engine-driver, aged fifty-three, has, owing, it is believed, to the constant concussion connected with his occupation, been a stammerer of this kind. Rectal examination now shows that his prostate is commencing to enlarge, as not only is it increasing in breadth, but a distinct band of what I take to be muscular tissue is to be felt stretching across and filling it up. I was able to demonstrate this to my house-surgeon, Dr. Collins, and my clinical class, who had no doubt about the facts, whatever the construction placed on them might be. The sequence of events in this case appears to have been enforced retention by reason of the man's employment, incomplete emptying of the bladder, irregular and spasmodic efforts to expel residual urine, terminating in commencing hypertrophy of the muscles principally involved—namely, those associated with the expulsive action of the bladder. The frequency with which the floor of the gland is the first to show the hypertrophic change, seems to strengthen the inference I have drawn from the development of the inter-ureteral bar, and to indicate that both conditions are the direct result of straining and an excess in the expulsive action of the bladder and associated parts. Structurally, the inter-ureteral bar and the hypertrophied prostate are identical, with the exception that in the latter will be found the follicles which have led to it being regarded as a glandular body. It is impossible to examine some of the commoner forms of advanced prostatic hypertrophy without being struck with their resemblance to what I would describe as growing casts of the interior of a frequently contracting bladder.

But it may be urged that if repeated expulsive action on the part of the bladder causes enlargement of the prostate to follow, how is it that stone and urethral stricture do not in like manner occasion it as a uniform consequence? To this I would reply that stone and stricture as excitants of expulsion are general or varying in their operations, and do not, as a rule, merely involve a limited area of the bladder wall; consequently the hypertrophy following

stricture is universal so far as the viscus is concerned. In the same way, the whole bladder is involved when a growing prostate becomes in addition an obstacle to micturition. When a stone is fixed to the bladder, it is, I believe, subjected to precisely similar influences on the part of the bladder wall immediately adjacent to it as those described in connexion with the trigone, and may result, as I have seen, in a circumferential development of muscular tissue sufficient in some instances to produce sacculation. This is not an uncommon process, and may be studied with advantage in those cases where secondary calculi are developed as a consequence of surface irregularities produced by a large prostate, and which I have referred to elsewhere as fixed or stationary stones. Further, it may be urged that such an explanation cannot be held to cover those instances where persons with more or less enlarged prostates do not suffer from them. I have investigated cases of this kind generally with the result of finding out that, at some period in their history, considerable urinary irritation was present and persistent. That an hypertrophy may prove to be a *precise compensation*, without, on the one hand, falling short, or, on the other, overlapping, I think we have evidence here as in other parts of the body. It has been objected that enlargement of the prostate cannot be regarded as a mere muscular hypertrophy, as it does not occur during those periods of life which are most remarkable for muscular activity and development. On the other hand, it is hardly necessary to remark that, though an hypertrophic act in which muscular tissue is principally involved, it is really prompted by alterations in the form or function of a contiguous part which are the products of advancing years.

It may not be out of place to observe in connection with analogous processes of hypertrophy, which in general terms have been referred to, that the best marked are those where structural defects are remedied, not in the part itself at fault, but in that which is adjacent. In the heart it is not the valve that is reproduced, but the ventricle or auricle which is augmented. Nor does the analogy cease here, for as the hypertrophic heart in turn occasions symptoms peculiar to itself, in like manner does the large prostate produce its own derangements. In conclusion, it should be remembered that the changes and diseases to which the hypertrophied gland is liable, and about which there is much to be said of great practical value, must not be confounded with the primary lesion it is desired here to refer to.

In addition to the valuable paper and plates by Sir Charles Bell on the Muscles of the Ureters, mention must be made of Mr. Viner Ellis's communication on the Muscular Arrangements of the Genito-urinary Apparatus. In reference to the impossibility of dissociating the functions of the bladder and prostate, the latter author remarks:—"I would propose the name "orbicularis vel

sphincter urethræ' for both the prostate and the prolongation around the membranous urethra; whilst I would confine the old term, 'prostate' (without the word 'gland') to the thickened and more powerful part near the neck of the bladder. This orbicularis may be considered as only an advanced portion of the circular layer of the bladder, though it must have the power of acting independently of the vesical fibres." The truth of this I never fully realised, until I had practised, and watched the result of, a considerable number of operations, undertaken with the view of permanently relieving urgent symptoms attendant upon the large prostate.—*Lancet*, March 6, 1886, p. 438.

74.—ON TUNNELLING THE LARGE PROSTATE.

By REGINALD HARRISON, F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

The operation of tunnelling the enlarged prostate from the perineum, which I introduced nearly five years ago, has been so favourably received in this country and in America as a means of relieving urgent symptoms attending this complaint, as well as of permanently reducing the size of the gland, that I am induced again to draw attention to this treatment, and to notice some modifications tending to simplify the performance of the operation. As it may be regarded as the only treatment which hitherto has been immediately followed by atrophy or shrinking of the large gland and the complete recovery of the patient, it is important that its value should be tested by others who have not yet had the opportunity of doing so. Of the various authors who have referred to this procedure, I would quote the following comment upon it from the writings of the late Dr. Gross, of Philadelphia:—"My conviction is that this operation is destined to come into general use in this class of cases, of such frequent occurrence in advanced life, and a source of so much suffering."

The operation consists in puncturing the bladder with a special trocar (made for me by Messrs. Krohne and Sesemann), about an inch in front of the anus. (See woodcut and description in *Retrospect*, vol. 85, p. 230.) The trocar is intended to pass through the large prostate into the bladder at a lower level than that of the normal canal, the object being to make a temporary "low-level" urethra, and thus to favour the thorough drainage of the viscus. When the bladder is largely distended with urine, the process is simple enough; when this is not the case, and the operation is undertaken with another object, I advise the following procedure. The patient being placed under an anæsthetic, and in the lithotomy position, a catheter is passed, and the bladder distended with tepid water; the beak of the catheter being reversed so as to lie in the dip above the large gland, and the escape of water from

the bladder being prevented by a band round the penis, the trocar is introduced through the perineum into the bladder, as in the manner already described. As the point of the trocar enters the bladder through the prostate, it will be found to strike against the beak of the catheter, towards which it should be aimed. A few words about the instrument: the trocar is hollow, with an opening by the side of the point; as soon as the distended bladder is entered, fluid escapes at the handle, the trocar is then withdrawn, and the cannula left behind. The catheter is fitted with a moveable collar, so that by means of a screw the cannula can be nicely adapted to the thickness of the tissues penetrated, it not being desirable to leave too long an end of it within the bladder. The collar is perforated with side holes, by which the apparatus is fixed by an ordinary T bandage. A piece of rubber tubing, two or three feet in length, is then slipped on the end of the cannula, by means of which urine is conducted to a vessel by the patient's bedside. After a few days in bed, the patient gets up, and then tucks the end of his tube, fitted with a small spring compressor, into a belt round his waist. When he wants to pass water, all he has to do is to let down the tube between his legs, and take off the compressing spring. Urine then flows by gravity, without any expulsive force, complete rest for the parts being obtained. After six, eight, or ten weeks, according to circumstances, the patient will now and then be conscious that slight gushes of urine along the natural passage will occasionally and involuntarily take place. Like as when urine passes along the urethra for the first time after lithotomy, I have known its first occurrence after prostatic puncture followed by a slight rigor and some elevation in temperature. When these involuntary gushes take place, they may be regarded as indicating that the gland has undergone such an amount of atrophy or shrinking as to cause the urine to prefer the natural to the artificial channel for its exit; the cannula can then be removed, when the wound speedily closes.

Apart from ulterior objects, the comfort patients derive from giving up the catheter, the easy way the bladder is washed out, the non-confinement to bed, and undisturbed repose, is very marked. It is interesting to observe, in connection with this subject, how it sometimes happens in cases of large prostate, where catheterism has been found impracticable, and it has been necessary to empty the bladder by the repeated use of the aspirator for considerable periods of time, that both micturition and catheterism may again become permanently possible, circumstances which seem to point to some diminution in the size of the gland having in the interval taken place.

In conclusion, I would recommend the adoption of tunnelling the prostate from the perineum, as the best method of tapping the bladder in all cases of emergency where retention of urine from an

enlarged prostate occurs, and catheterism is found on proper trial to be impossible; and, secondly, this operation may be undertaken with the view of inducing atrophy of the gland, in cases where the functions of the bladder are so interfered with as to render life almost intolerable.

In the observation of a considerable number of cases of difficult catheterism due to large prostates, I have often thought in some instances that far less damage would have been done directly and indirectly, if the practitioner, on appreciating his difficulty, had used a trocar in a suitable position than persevered with the catheter. —*Provincial Medical Journal*, March, 1886, p. 99.

75.—ON CONTINUOUS DRAINAGE OF THE BLADDER BY POST-PROSTATIC PUNCTURE.

By E. H. HOWLETT, F.R.C.S., Hull.

[After a short reference to supra-pubic aspiration in cases of retention, and the mention of a fatal case in his own practice, Mr. Howlett proceeds to examine the conditions under which continuous drainage of the bladder may be of service, and to describe his own method of operating.]

Continuous drainage of the bladder has hitherto attracted but little attention from the profession; for, if we except the practice of Sir Henry Thompson and Mr. Reginald Harrison and a few others, it cannot be said to have been employed in anything like a systematic manner. Chronic cystitis, enlarged prostate, atony of the bladder, paralytic retention, ruptured urethra, impassable stricture, and malignant diseases of the prostate or bladder, are some of the affections in which continuous drainage might be employed with success, whilst in plastic operations about the urethra it will be found invaluable. Dr. Macan has advocated the formation of a vesico-vaginal fistula in the treatment of chronic cystitis in the female; in other words, "continuous drainage." Surgeons for long enough have been treating chronic cystitis by drainage and antiseptic washes, but I humbly suggest that in so doing they have been attacking the disease from the wrong side. If we desire to irrigate the bladder, what can be more rational than to make use of Nature's irrigators, the kidneys? Urine, as it flows into the bladder, is in an aseptic condition, but it is readily decomposed by any ferment existing in that viscus. We are able, however, to alter the condition of the urine, so that, instead of a bland aseptic fluid, it will become an active antiseptic one. This can be done by the administration by the mouth of either boracic acid or salicylate of soda; both drugs answer well, but the boracic acid (1 in 20) is, as a rule, better borne than the salicylate. It is often marvellous to watch the effect of the administration of these drugs in some cases of chronic cystitis, for urine, which on being

passed has for days and weeks been stinking, in a few hours becomes bland and clear. In this place I may add that, before undertaking any operation on the bladder or urethra (except in cases of emergency), the patient should be placed on a course of one of these drugs for at least three days previously. Many cases of fractured spine with paralytic retention have been hurried to their grave by intractable cystitis, whereas, by a well-timed operation, life might have been prolonged, and recovery of some sort perhaps have taken place.

Assuming, then, that there are conditions which might best be treated by continuous drainage, we have next to consider what method of operating gives the greatest prospect of success. Five methods have been employed, namely, supra-pubic, rectal, and inter-pubic puncture, opening the membranous urethra, and prostatic puncture. To these I would add a sixth, the post-prostatic puncture from the perineum. The objections to supra-pubic and rectal tapping are too obvious to need further discussion. Inter-pubic puncture is difficult; and, according to Sir Henry Thompson, by the time the trocar has penetrated the pubic bone, it is too blunt to enter the bladder. Opening the membranous urethra, though strongly advocated by Sir Henry Thompson, has the great disadvantage of interfering with the urinary canal; whilst Mr. Reginald Harrison's prostatic puncture requires a condition of that body not always obtainable in the class of affections which I have suggested as likely to be benefited by continuous drainage. The post-prostatic operation is free from any and all the objections which can be raised against the other operations; it is well placed for drainage, it does not interfere with the genital tract, nor is it in the way in defæcation. The part of the bladder attacked is the same as in the rectal operation, the site long since selected by surgeons as most favourable for tapping. On the other hand, the risk of urinary extravasation behind the deep pelvic fascia, of injury to the vesiculæ seminales, and to the peritoneum or knuckle of intestine in the recto-vesical pouch, may be urged as disadvantages of the operation. They are, I believe, largely imaginary, as with proper care the dangerous rocks can be avoided; the most real danger is that of urinary extravasation; but, as will be pointed out in the cases to be mentioned, the muscular and mucous coats of the bladder contract immediately after the withdrawal of the instrument, and prevent any urine from escaping, whilst, even should some do so, it will choose the path of least resistance, and appear at the perineal puncture. To perform the operation, the patient is placed in the lithotomy position, and, if the bladder be contracted, it can be filled from the urethra in most cases. The forefinger of the left hand is then passed into the rectum, and made to explore the prostate and inferior surface of the bladder. Some sort of idea can then be formed of the distance the trocar

will have to travel to reach the bladder, and the direction. The forefinger being retained in the rectum, a trocar and cannula, of the size of a No. 12 catheter, is thrust through the skin about three-quarters of an inch in front of the anus, and slowly pushed on till resistance is felt to have disappeared; the trocar is then withdrawn, and the bladder emptied. The subsequent steps of the operation require no description. In my cases, the metal cannula was maintained, but it would be better to pass through it into the bladder a No. 8 red elastic tube, and withdraw the cannula. It is a great advantage to be able to introduce so large a tube, as the chances of its becoming blocked are reduced to a minimum. Finally, to make the patient comfortable, a tube is attached to the catheter, and the urine drained into a bottle. To retain the catheter, Mr. Appleton, of Beverley, devised a very simple apparatus. It consists of a triangular piece of thick leather, with a hole in the centre, through which the catheter passes. One small hole behind, and others at either of the front corners, permit the tapes passing, which are attached to a belt round the loins.

[Mr. Howlett narrates two cases in which he has performed this operation with success, so far as efficient drainage of the bladder is concerned. The first case was one of complete epispadias, under Mr. Hardie's care, in the Manchester Infirmary. The second case was one of prostatic enlargement, with atony of the bladder, occurring in the practice of Mr. Appleton, of Beverley.]—*British Medical Journal*, Feb. 13, 1886, p. 290.

76.—ON TOTAL REMOVAL OF THE PENIS AND TESTES FOR MALIGNANT DISEASE.

By C. G. WHEELHOUSE, F.R.C.S., Leeds.

[The case upon which Mr. Wheelhouse's remarks are based was one of return growth in the stump left after amputation of the penis, in which also the testes and inguinal glands were involved. He thus describes his operation for total removal of the external genitals in cases of epithelioma.]

The operation aims at the total removal of the entire body of the penis, and is performed as follows. A vertical incision is made through the skin of the mons Veneris, and, sweeping around each side of the root of the penis, is carried onward into the raphé of the scrotum. The skin being then held well away on each side, the body of the penis is drawn fully out of the wound, so as to expose the organ to its very root. A twitch is then placed upon it as far back as possible. This is so tightened as to act as a tourniquet, and then the organ is severed from its connections immediately in front of the triangular ligament. The dorsal artery of the penis and any other bleeding vessels are then secured; the tourniquet-twitch is removed, so as to expose the part freely; and

any portion concerning which any doubt can be entertained is carefully clipped away. The body of the penis is thus entirely removed, and the first stage of the operation is completed.

Next comes the question, What is to be done with the urethra? This, as you know, is one of the great difficulties of the old operation—perhaps the greatest; the passage in that operation is simply slit along its under surface, and the edges of the mucous membrane are stitched back to the edges of the skin, and the after-diminution of the canal by the double cicatricial action of its own tissues and of the skin remains, *par excellence*, the evil to be contended with.

In the new operation, we deal with it thus. As a second stage is proceeding, the patient is placed in lithotomy position, the perineum is laid open in the centre, and the urethra, into which a sound has been passed from above, is carefully dissected from its connections for about an inch, or an inch and a-half, and is then brought down into the perineum, is brought out through the wound there, is laid open on its under surface for half an inch or so, and its margins are carefully stitched to the edges of the perineal wound at a little distance in front of the anus. There it is permanently fixed; a soft rubber catheter is introduced into the bladder, and is kept there for a few days. Both wounds are then carefully stitched up, and, when they are healed, no trace of the penis can be found. Henceforward, the patient is obliged to micturate in the sitting position; but, as he retains perfect control over the bladder, this is a matter of but little inconvenience.

The glands in the groin should now claim attention. It may be that they are swollen, enlarged, and in a state of sympathetic irritation, and yet are not infiltrated with the germs of the specific disease. They were in this condition in the case of which I have been speaking. If we can be tolerably confident that such is their condition, they should be, by all means, left alone. The source of irritation having been removed, they will, probably, quietly return to their normal state, and the less injury inflicted on the patient the better. But if, on the other hand, they be already implicated in the disease, I would strongly advocate their removal as part of the operation; for, though their ablation may seem to add materially to the primary risk to the patient, it will, in reality, very greatly help to insure the permanence of its protective influence, and may retard the return of the disease by many months.

Since the above operation, which I consider a memorable one in the annals of my surgical life, I have seen my colleague, Mr. Jessop, in a case which seemed really desperate in its extent, sweep them all away with the happiest and most perfect result.

Then, with respect to the testes, you may perhaps conceive that a little more deliberation should be exercised before they are removed. In a case in which, only a very short time previously, I

had performed a somewhat similar operation, these organs were in no way implicated; there appeared to be no reason for interference with them, and they were allowed to remain. In the one I have just detailed to you, they were distinctly involved in the disease, and without hesitation I removed them. The result, in the two cases, was as marked as it was different. The two patients lay in contiguous beds, were constantly comparing notes, and never failed to give me the benefit of their discussions. The removal, though it added greatly to the severity and danger of the operation, did not prevent the patient from making an excellent recovery, and he has many times since spoken to me with the greatest gratitude and thankfulness for the complete relief I had afforded him in every way. In the case, on the other hand, in which I did not remove them, they became from first to last a cause of trouble and distress. Soon after the operation, they became swollen, and remained tender for a long time; they were there as a possible seat for the return of the disease, and, by their physiological action, they were a constant source of annoyance. To a patient otherwise completely mutilated, you will easily understand how and why this should be so; and many a time that patient volunteered the assertion that he wished that, while I had been about the business, I had made a complete sweep of everything for him as well as for his neighbour. The one patient was, so far as is possible in such a case, completely relieved, the other was only partially so; the one was freed from physiological as well as from pathological discomfort, while the other remained a prey to desires which could never be gratified; and the eventual condition of the former was certainly more satisfactory and perfect than that of the latter.

When, therefore, you feel compelled to resort to the more sweeping measure of total ablation of the penis, I think the consideration of the patient's condition in the future, should he recover from the operation, should be laid fully before him, should be carefully explained to him beforehand, and, should he determine to submit to the removal of the testes, as well as of the penis, I should not often hesitate to make the operation complete. So long as any portion of the penis is left, this question will never, of course, arise; but, when that organ is completely and entirely removed, it becomes a very essential part of the consideration to be placed before the patient.

Remembering what I said to you in my last lecture on the unwisdom of claiming priority in any surgical proceeding, bear in mind that I claim no precedence as to this; I derived it from a German source, and whilst I find that my own countrymen are nearly as tenacious of their claims to priority and inventiveness as is possible, I fear our foreign colleagues are just a little more so.—*British Medical Journal*, Jan. 30, 1886, p. 187.

AFFECTIONS OF THE SKIN, ETC.

77.—ON TOPICAL APPLICATIONS IN SKIN DISEASES.

By H. G. BROOKE, M.B. Lond., Physician to the Manchester and Salford Hospital for Skin Diseases.

[After some weighty remarks upon the careless and slipshod manner in which local applications are prescribed, and the scanty and too often useless instructions given to patients, Dr. Brooke proceeds to describe some improvements he has been led to make in the muslin and gutta-percha plasters of Unna (see *Retrospect*, vol. 92, p. 86), and also some new preparations of his own.]

In order to remedy these defects, I have tried to devise another expedient to effect the same end. I have had the medicaments made up with a very stiff basis composed of varying proportions of wax, cocoa butter, and oil, and cast into the form of a stick of "cosmetic." This when rubbed on to the skin is sufficiently soft to leave a complete coating of salve, and sufficiently hard not to run. On the face the layer is scarcely noticeable, and can be readily renewed several times a day by the patient, with merely momentary trouble. On the body, however, the advantages of Unna's plasters may be secured by placing over the anointed spots a piece of impermeable adhesive plaster. Mather's "Surgeon's Adhesive Rubber Plaster," and Beiersdorf's Aluminium Sticking Plaster with gutta-percha back, both answer excellently; both adhere at once without the application of heat, and prevent effectually the permeation of the drugs. By making the patch of plaster sufficiently large to overlap the ointment by half an inch, the latter is cut off entirely from all contact with the air or with the clothing, and a direct hold for the plaster is obtained, sufficiently firm to prevent its shifting. By this means a patient may be treated for his psoriasis, eczema, lichen, syphilides, &c., with no more inconvenience than if he were wearing any simple "chest plaster," and with infinitely less trouble than a corresponding lint and bandage dressing would involve. The effect in psoriasis is distinctly better than that produced by Auspitz's treatment of chrysarobin mixed with a 10 per cent. solution of gutta-percha in chloroform (traumaticin), and also than Besnier's plan of applying the chrysarobin first in a 10 per cent. chloroform solution and subsequently painting over the traumaticin when the chloroform has evaporated. The plaster is more durable and less painful than the gutta-percha film when removed for inspection or renewal. This method has the advantage, too, of retaining the ointment base, and therefore of promoting that absorption of the medicament by the skin which fat allows of in a higher degree than any other vehicle.

[Messrs. Gibbons and Son, 41, Market Street, Manchester, have made up a number of these Medicated Salve Sticks for me. The

more important of them contain Chrysarobin (5 per cent. and 10 per cent.), Acid Pyrogallic (10 per cent.), Acid Salicylic (10 per cent.), Empl. Plumbi (25 per cent.), Hydrarg. Amm. Chlor. (10 per cent.), Iodoform (10 per cent.), Naphthol B (10 per cent.), Pic Liq. (20 per cent.), Sulph. Iodidum ($2\frac{1}{2}$ per cent.), Zinc Oxide and Carbolic Acid (10 per cent.)]

I have made an attempt to obtain a gutta-percha plaster, which would serve to cover in a layer of hard ointment, and secure the effects of an impermeable back, while at the same time being cheap and easily made. A satisfactory result was obtained by affixing evenly a sheet of gutta-percha tissue to one side of a thin smooth piece of paper which had been permeated with thick gum water. It adheres readily when moistened, and keeps greasy and staining substances well within bounds; it is not very pliable, however, and must therefore be replaced by plaster or bandages at the joints.

Another basis which I have found of great use, particularly in cases of more extensive disease, is formed of a mixture of equal parts of almond oil and thick gum water. A creamy emulsion is produced, which, when well rubbed into the skin, soon dries and leaves an almost invisible coating. A 15 per cent. to 20 per cent. solution of salicylic acid in this oil-gum is very effectual as a treatment for slight cases of chronic eczema, where no very vigorous measures are called for, but where the thickened skin is a provocative to constant scratching and consequent slight local relapses. I have used it also with good effect as an auxiliary in cases of lupus, especially in extensive patches which are being operated upon piecemeal, and in very slight and superficial cases. In one case, that of a factory operative, with extensive and well-marked verrucose lupus of the back of the hand, of twenty years standing, where I ordered it, half as a placebo until she could find time for an operation, it almost completely cured the disease, without pain, and without in the least interrupting her in her daily work. The oil softens the skin and allows the drug to penetrate, while the gum forms a sufficiently strong coating to prevent the oil from being wiped away, and clings to the skin firmly enough to render any protective dressing unnecessary.

To a young lad, who is still under my treatment, suffering from very obstinate psoriasis, which had, owing most probably to carelessness on his part, resisted other treatment, I used a mixture of the oil-gum with 10 per cent. of pyrogallic acid. After rubbing this well into the skin, the body was covered with pieces of thin cap paper to prevent staining, and the operation was repeated once daily. Improvement has been marked and rapid since its employment, and he is now nearly free from the disease. The benefit is all the more striking, inasmuch as he had previously used 10 to 15 per cent. ointments for some weeks, with very little effect.—*Medical Chronicle*, Oct., 1885, p. 17.

78.—ON THE TREATMENT OF NÆVUS BY ELECTROLYSIS.

By Dr. JOHN DUNCAN, Surgeon to Royal Infirmary, Edinburgh.

The cases in which electrolysis should be used are the mixed and subcutaneous varieties of nævus which are situated on exposed parts of the body, as the face or hands, and those situated elsewhere which may not be amenable to ligature or excision. This limitation has not been sufficiently defined by those who have since adopted electrolysis, although even on first introducing the method to the profession I deprecated its indiscriminate employment.

The advantages of the subcutaneous use of electrolysis in nævi on exposed parts are sufficiently evident. It cures the disease without leaving the slightest trace of its action. The little needle punctures entirely disappear as a prick from any other needle does, and the absorption of the diseased structure is accomplished without the slightest puckering or scar. In bringing about this result it is absolutely safe, and the limits of its action can be more precisely defined than in any other subcutaneous injection or operation.

I have now been operating on nævi by this method for twenty years, and I find that in that time I have subjected to electrolysis one hundred and thirty-three (completed cases), so that some idea of the value of the method may be obtained. On an average three operations are required in each case, but greater experience has enabled me distinctly to diminish the number of sittings of late years, by doing more at each without damage to the skin, and by increasing the interval between them, to allow of more perfect absorption, and so bring out the full benefit of each operation.

I have not had one fatal result or even anxious symptom in any case. The only danger, indeed, is in the anæsthetic, without which it is unpleasant to work in children on account of the pain. Even in adults I find it necessary to use an anæsthetic. They describe the sensation as that of a severe burn, and have always demanded it at the second sitting if I have persuaded them to do without it at the first. The final result has not been definitely ascertained in about ten per cent. of the cases. These, chiefly Infirmary cases, have not reported themselves. I am not aware of any in which there has been failure to cure. In six operations I carried the action too far in my endeavour to get as near to the nævoid skin as I could, and so produced a cutaneous slough. In two of these I then resorted to other measures. The remainder were cured with more or less marking by cicatrix. In nine operations, which include four of these six, some suppuration occurred. All of these nævi did ultimately perfectly well, but in all I now blame myself for not attending sufficiently to the aseptic condition of my needles and fingers, or for carrying the action too far. In five cases some trace of the former disease remains. This comes

from the fact that sometimes after the tumour is cured the nævoid condition of skin remains to a greater or less extent. Experience of others leads me to believe that even this will probably disappear with the lapse of time. In some a certain whiteness or scar-like appearance of the skin which had been affected persists for a certain time, and I think will occasionally prove permanent.

These results give a general idea of the value of the method. By far the larger number of the nævi so treated were situated on the head and neck, for the reasons I have already detailed.

Nævi are frequent enough in the interior of the mouth. Usually they are extensions of external tumours through the thickness of the cheek, or by direct superficial continuity over the lips. They occur independently, however, and I have used electrolysis with success in the tongue, the soft palate, and the inner surface of the lower lip. In such cases a gag must be used, and it is necessary to attend carefully to the precautions for the prevention of bleeding. A child aged three years had a nævoid tumour of the foot. It involved the greater part of the outer margin, and penetrated from sole to dorsum between the fourth and fifth metatarsal bones. The growth entirely disappeared after four applications of electrolysis.

I know of no other method whereby such tumours as these could be cured without risk and without disfigurement. The method of operating is exceedingly simple and easy, but requires some care and attention to detail to attain perfect results.

It is unnecessary nowadays to go into minutiae as to the effects of the different forms of electricity. After trying many batteries of constant current, I have reverted to the Bunsen or Smee, with four to six cells of large size. In the Infirmary, where it can be prepared by others, I use the Bunsen, of four cells, as giving the largest amount of chemical work with the least tension. But in private the Smee's battery, with plates about four inches by six, and having six cells, is most convenient. It is less dirty, has only one fluid, and is equally effective. The ordinary medical batteries do fairly well if a sufficient number of cells be used. But their high tension is a disadvantage, and using them in surgical work only once in a way, you are very apt to find them acting badly when you require them, and have still further to increase the number of cells employed. Before operating, the poles should be tested in saline water, and only used if the evolution of gas is copious and continuous.

The needles should be insulated with vulcanite. I know of no improvement on those originally introduced by Professor Fraser and myself. I have been recently told of a case in which the vulcanite covering fused during an operation. This can only have occurred because the needle in the centre had been reduced to extreme tenuity to receive the vulcanite, and the exposed points

been allowed to touch in the tumour. The resistance of the thin portion of the needle must have been so great compared to other parts of the circuit as to cause it to become overheated. Such a combination is very unlikely to recur, and is easily avoided by trial before insertion. The length of the exposed point must correspond to the size of the nævus, varying from an eighth to three-quarters of an inch. For the sake of sharpness, steel is the best material; but the positive pole, if of steel, requires re-sharpening after each operation, because it is acted upon electrolytically.

Both poles should be introduced, because in that way you get most work in the shortest time. In small nævi they are best placed parallel and equi-distant from each other and from the sides of the tumour. In large nævi I am in the habit of moving them, more especially the negative, at intervals from place to place, and even of introducing them through new punctures. If left stationary, the amount of action rapidly diminishes after ten or fifteen minutes, on account of the slough with which they surround themselves. It is necessary to watch very closely the growing induration round each needle. It increases slightly even after the needles are withdrawn, and the action must be stopped before the skin is involved.

If the needles be very slowly withdrawn while the battery is still working, so as to cauterise slightly their track, not a single drop of blood will flow. If this be not done, it is necessary to apply gentle pressure for a few minutes. The punctures should then be covered with a little antiseptic wool and flexile collodion, and if there be the least suspicion that the action has been carried too far, and the skin cauterised, this covering should be extended over all.

In large nævi too much must not be done at one sitting or in one situation. The slough has to be absorbed, and it is better to establish several small sloughs at different parts than a great mass at one.

I find that, except in cases where I have been over-cautious and done too little, it is better not to repeat the operation under six weeks. This, however, is to be determined by the rapidity with which the induration may disappear, and by its effect on the growth as a whole. A very small slough may determine involution over a very large area, and so long as that is in progress it should be left alone. Every year I have been tending to lengthen the intervals. Of course, one meets with difficulties in this respect. Patients from the country are anxious to get home again. But I am sure it is better to let them go and come back, even though the interval be thereby much lengthened, than to hurry on another operation before you can tell the effect of the first.—*Edinburgh Medical Journal*, Feb. 1886, p. 710. [See also *Synopsis*.]

79.—REMOVAL OF SUPERFLUOUS HAIRS—ELECTROLYSIS.

By GILBERT SMITH, F.R.C.S. Ed., Surgeon to the Birmingham and Midland Skin and Lock Hospital.

Among the various methods adopted for the removal of superfluous hairs, there are none so easy of performance, so painless in their operation, so certain in their destruction of the hair-papilla, and which leave fewer traces of an operation on the surface of the skin, than electrolysis. Dr. Mechel, the oculist of the Missouri College, I believe, first introduced the operation for the treatment of trichiasis. To Drs. Hardaway of St. Louis, White of Boston, and Piffard of New York, we are indebted for the introduction and popularisation of electrolysis as a method of destroying hair.

The apparatus required for the operation consists of a galvanic battery of from ten to fifteen cells, a sponge electrode, a No. 14 needle, an electrode needle-holder, and two cord conductors, each a yard in length. The needle, properly fixed in its holder, is connected with the negative, and the sponge with the positive, pole of the battery. The needle is carefully introduced into the follicle alongside the hair, which is used as a guide to the papilla, the moistened sponge-electrode being grasped in the patient's hand (the needle should be applied before the circuit is completed by the sponge-electrode, and the converse after the operation; that is, the sponge-electrode should be released before the needle is withdrawn, otherwise pain will be caused).

The needle is held in position from ten to thirty seconds, according to the size of the hair, until slight frothing is produced, or a wheel appears around the mouth of the follicle; the sponge-electrode is then loosened, and the needle withdrawn. The hair should now be removed, and the ease with which it is extracted indicates the completeness of the operation. If the hair do not leave the follicle with the feeblest traction, the needle should be reintroduced one or more times. Shortly afterwards, slight redness and swelling are perceptible.

Under a strong lens, it is not difficult to introduce the needle directly into the follicle; but this is not absolutely necessary, as the requisite destruction occurs if the instrument be in its immediate neighbourhood. Messrs. Field and Co., of Birmingham, have made for me a lens adapted to a most convenient and portable apparatus, which can be fixed with clamp and screw. It has a number of joints of various kinds, so arranged that the lens can be focussed at any angle.

In a few hours the circumscribed congestion disappears, leaving small papules and pustules at the point of operation, which may remain visible for some weeks. For this reason, where the hairs are numerous, as upon the upper lip, not more than twelve should be removed at a sitting, leaving an interval of a week or two

between each operation. Where there are but few hairs upon the less prominent regions, all of them may be removed at one sitting; although I may remark that the tediousness of the process soon tells upon the operator.

Minute scars are most apt to occur where it has been found necessary to introduce the needle into the same follicle a number of times, or where hairs situated closely together are removed at one time; but even the most marked cicatrices are scarcely noticeable after the first few weeks.

Like all operations of a delicate nature, this requires a certain amount of skill and manual dexterity only to be acquired by some experience in its performance; this, however, is easily gained. The amount of pain felt differs in different patients, varying according to the region attacked, or the sensitiveness of the patient; while it is not trivial, it is not unbearable, and a tolerance seems to be established after a few sittings. In conclusion, I may state that all the cases that have come under my treatment have been most successful. I have recently had an opportunity of examining some patients upon whom I operated six months ago, and find no return of the growth of hair.—*British Med. Journal*, Jan. 23, 1886, p. 151.

80.—REPORT ON THE TREATMENT OF LUPUS.

By JAMES STEWART, M.D., M'Gill University, Montreal.

It will be remembered that, at the International Congress held in Copenhagen last year, with the exception of Kaposi, all the speakers who took part in the debate on lupus looked upon this disease as a tuberculosis of the skin. Although tubercle bacilli are very frequently found in lupoid infiltrations, and carefully conducted experiments have shown that the injection of lupus tissue into the blood and tissues of the lower animals causes tuberculosis in many cases, we are still far from certain what is the exact pathological relation there between lupus and tuberculosis of the skin—whether they are the same or different affections.

Since the tuberculous nature of the lupus tissue has become so generally accepted, many experiments have been conducted with the view of testing what, if any, influence is exerted over it by antiseptics. Doutrelepon of Bonn has used corrosive sublimate for this purpose. He employs a solution of the strength of 1 in 1000. Compresses soaked with this solution are fixed over the affected parts and covered with gum paper. He gives a report of some twelve cases in all, where a complete cure has resulted. The length of time before this end was attained varied from three to six months. The ages of the patients varied from 14 to 54 years. The cases included the several varieties of lupus—ulcerative, serpiginous, hypertrophic. Not only was there healing of ulcerative

surfaces, but a complete absorption of the lupoid infiltrations—"a complete involution of the new formation." In no case was there observed any of the untoward effects of the mercurial preparation, either local or general. In situations like the eyelids, where it was not convenient to apply the compresses, the sublimate was used in the form of an ointment made by dissolving one part of this salt in a sufficient quantity of sulphuric ether, and then mixing it with 300 parts of vaseline. In order to prevent relapses, it is recommended to continue the application of this ointment after an apparent cure has been obtained.

If Doutrelepon's observations are correct, we have in corrosive sublimate the most efficient means yet discovered of treating lupus. It should be mentioned, however, that in a number of his cases arsenic was given internally while the sublimate was being applied externally. It is a well known fact that the internal use of arsenic, like cod liver oil, has an influence in inducing the involution of lupoid formations.—*Canada Med. and Surgical Journal*, Jan. p. 345.

81.—PRACTICAL USES OF LANOLIN IN SKIN DISEASES.

By Professor OSCAR LIEBREICH, M.D., Berlin University.

From my investigations of the composition of the cholesterine fats found in keratinous tissues, I conjecture that the absorption into the skin would be best in the case of those fats which have their origin in keratin-bearing substances, as hair, epidermis, &c. The old theory, that the skin was only oiled from glandular secretion, did not harmonise with my research; and lanolin, upon my suggestion, is now being tested as to its efficacy in therapeutics as a new basis for salves and ointments. It possesses such peculiar properties, also noticed by Berthelot, that it becomes a matter of necessity to give a number of formulæ, in order that the druggist may more easily compound and dispense the remedy. It is also of importance to add other ingredients to make it more pliant, as it is a too sticky mass in itself to be employed alone; and, from the many trials which I made with different substances, as vaseline, paraffine, ointment, glycerine, oils, and fat for this purpose, I found the latter by far the best, as the others generally interfered with the absorbing qualities of lanolin.

I must also state that the many substances, under the name of pure wool-fat and wool-oil, which have found their way into the trade before and since the introduction of lanolin, are injurious, as they contain free acids and various animal substances.

I shall not fail to publish, in the near future, its more exact chemical composition; but for the present I may suggest the following tests for its purity in therapeutics.

1. A small quantity, on being heated in water over a water-bath, must show the absence of glycerine.

2. If a solution of caustic soda be added, ammonia must not be developed.

3. The fat, if a small portion be heated with water on a water-bath, must separate in oily drops without producing an emulsion. If the quantity employed be large, it must separate as a clear oil.

4. With blue litmus-paper, the reaction must not be acid.

5. If it be mixed or well rubbed with water upon a ground-glass plate with an iron spatula, the result must be a product containing over 100 per cent. of water; and if the lanolin employed be pure, the kneaded mass will be sticky and paste-like, to which the spatula readily adheres, but, if impure, the mass will have a soap-like smoothness, from which the spatula readily glides.

6. On exposure, the upper surface of lanolin and all lanolin salves and ointments becomes darkened, due to the evaporation of water, and not to its decomposition.

7. It never becomes rancid, its smell should remind one of wool.

My experience with the remedy, with that of other physicians, has been but limited, yet I do not hesitate to pronounce the results so far obtained most promising. The first question which presented itself was, whether the skin would bear it well. From its use, in over 400 cases, in the hospital and private practice of Dr. Lassar, the dermatologist, no irritation of the skin was ever produced, a result which my own experience, during the years in which I have been experimenting with it, confirms. For this reason alone, it is to be highly recommended for *massage*, for which purpose I should suggest the formula No. 11.

It is true it is not as smooth as vaseline, but it has the advantage that the skin, after being rubbed dry with a cloth, still remains soft and pliable. In cases where the epidermis is fissured, as in *chapped hands*, recipe No. 11 may be advantageously employed.

The parts affected, particularly the hands, are to be well washed with some good soap, and then to be thoroughly rinsed with water. Upon the moist surface a small quantity of the ointment is to be well rubbed in, and the parts afterwards to be wiped with a dry towel. The skin is left soft and supple, on account of the rapid absorption and retention of the lanolin; and, what is more remarkable, the hands are not greasy, yet the water flows from them as if oiled. Accordingly, it may be especially useful for the hands of surgeons and obstetricians. Hands thus treated show a greater resistance towards cold and water.

The influence produced upon the skin in *seborrhœa sicca* is remarkable. On combing the hair with a fine comb, the scales disappear rapidly. For this purpose, I should employ prescription No. 21, which may be somewhat varied according to the taste of the individual. In *pruritus ani*, I have used lanolin with sulphur, with admirable results.

Dr. Lassar, in his polyclinic for skin-diseases, has found that

psoriasis heals very easily and quickly, and without irritation, through the use of a 25 per cent. lanolin-chrysarobin ointment. It remains for the future to determine whether in all cases equally favourable results will be reported.

In connection with the lanolin-chrysarobin treatment, I had the opportunity of seeing an interesting and remarkable result obtained by Dr. Wende, of Buffalo, New York. The patient, a boy aged 13 years, from the polyclinic of Dr. G. Behrend, had *tinea favosa* over the greater part of his head. The case was of eight years' standing, and had resisted the most careful and thorough treatment. It was shown that the case was undoubtedly favus by Dr. Grawitz, assistant of Prof. Virchow, who made a pure culture of the fungus, of material obtained from the head of the boy, and inoculated it on the left arm of Dr. Wende, where the most characteristic scutules appeared. At first, only one-half of the head was treated in this manner. After a few applications, it showed marked improvement; and the advance was so rapid, that it was decided to treat the remaining half in a similar way. In twelve days, the case was apparently cured, and the treatment was for the present discontinued. The favus on the arm of Dr. Wende disappeared upon one application of a 10 per cent. and one 20 per cent. lanolin-chrysarobin ointment. Dr. Wende further informs me that a radical cure in *herpes tonsurans*, and in *pityriasis versicolor*, was produced with a 10 per cent. ointment.

Such fine results further illustrate how great a benefit was conferred by Squire upon the medical profession through the introduction of chrysarobin. Dr. Lassar employs salicylic lanolin in the treatment of eczema. This may answer well in many cases; but, inasmuch as water is not always tolerated in eczema, Dr. Wende recommended formula No. 3, the water to be expelled before applying. Lanolin is excellently adapted to form the *basis for blue ointment*; the mercury is found more minutely divided than I have ever before witnessed. Upon my request, my friend Geheimrath Mayer, in Aix-la-Chapelle, in connection with Geheimrath Brandis, made a thorough test of it. They consider it superior to other vehicles for this purpose. In no case did it show an inclination to produce eczema.

As can be seen from the formulæ, no fat is required in compounding salves where fluid extracts are used; but I must especially warn against employing the full dose of toxic agents, as only one-half the dose is necessary. Thus, a veratrine salve, consisting of fat 10 grains, veratrine 0.25 grain, produced no irritation of the skin: while a salve of lanolin 10 grains, veratrine 0.25 grain, was so strong that for five hours an intense burning sensation was perceptible on and about the point of application. I annex the following formulæ, which may be changed by the physician, as necessary.

1. R. Argenti nitratis partem 1; lanolini partes 9. This ointment is somewhat solid; good to be spread on charpie.

2. R. Cerussæ partes 30 ; adipis 10 ; lanolini 60.
3. R. Emplastri plumbi simplicis partes 50 ; olei olivarium 20 ; lanolini 30. This salve appears solid, but becomes pliant as soon as brought into contact with the skin. In eczema, it should be heated until the water has evaporated.
4. R. Emplastri plumbi simplicis, lanolini partes æq. As an ointment, this form is too solid, but useful as a plaster.
5. R. Hydrarg. præcip. albi partes 10 ; adipis 10 ; lanolini 80.
6. R. Hydrarg. oxydati partes 10 ; lanolini 90. When used as an eye-salve, add 30 per cent. of fat.
7. R. Liquoris plumbi subacet. partes 8 ; adipis 10 ; lanolini 80.
8. R. Zinci oxydi partes 10 ; adipis 10 ; lanolini 80.
9. R. Cinnabar partes 10 ; adipis 10 ; lanolini 80.
10. R. Hydrargyri partes 50 ; lanolini 12 ; unguenti hydrarg. cinerei 2.5 ; sebi ovilli 25 ; lanolini 87.5 (Dr. Dieterich.)
11. R. Potassii iod. partes 20 ; aquæ 10 ; adipis 20 ; lanolini 150.
12. R. Cetacei partes 10 ; olei olivarum 30 ; lanolini 40 ; aquæ rosarum 50.
13. R. Iodoformi partes 10 ; adipis 10 ; lanolini 80.
14. R. Chrysarobini partes 10 and 20 ; adipis 10 ; lanolini 80.
15. R. Picis liquidi partes 20 ; lanolini 80.
16. R. Balsami Peruviani partes 10 ; olei terebinthinæ 20 ; lanolini 70.
17. R. Acidi boracici partes 10 ; adipis 20 ; lanolini 70.
18. R. Acidi carbolici partes 5 ; adipis 5 ; lanolini 90.
19. R. Acidi salicylici partes 10 ; adipis 20 ; lanolini 70.
20. R. Naphthol partes 5 ; adipis 10 ; lanolini 85.
21. R. Lanolini, butyri cacao, aa partes 50 ; adipis suilli 5 ; olei rosarum gr. iij : a *hair pomade*.—*British Medical Journal*, Feb. 13, 1886, p. 282.

SYPHILITIC DISEASES.

82.—ON THE TREATMENT OF GONORRHŒA BY MEANS OF GROOVED BOUGIES

By LEOPOLD CASPAR, M.D., Berlin.

It is clear that many chronic gonorrhœæ already represent the first stages of strictures, or, as Otis calls them, "large-sized strictures," which naturally cannot be cured by astringent solutions, or even such as are fatal to gonococci. If they are to be cured, local pressure must be used to remove the cell infiltration, while medical treatment is adopted to affect the catarrh. For these reasons, treatment with bougies against chronic gonorrhœa has been mostly practised. Some went a step further, and used bougies covered with simple salves ; others, as Unna, employed bougies covered with a paste, composed of butyrum cacao and different medicaments, which dissolves at body temperature. Similar considerations

influenced me in the treatment of gonorrhœa chronica. But the usual bougies and the bougies covered with salves and paste not being successful in obstinate cases, I tried a modification. I was convinced that the paste bougies did not sufficiently fulfil their purpose, for very often the bougie does not reach the bladder, because the narrow walls of the urethra will not permit it to pass with the hardened paste; consequently one would have to wait, as Unna says, until the paste was dissolved, and then the melted salves would not reach the places behind the stricture where the catarrh is very often located, and for which they are intended. Further, cacao butter should not be allowed to enter the bladder if it can be possibly avoided; for after such treatment I have seen a simple gonorrhœa anterior become a gonorrhœa posterior and a cystitis colli with severe tenesmus; twice I have observed epididymitis after it, but I cannot decide whether *post hoc* or *propter hoc*.

These considerations caused me to devise a method which would have the advantages of the combined mechanical and chemical treatment, and at the same time avoid the evils I have mentioned. For this purpose I constructed nickel-plated bougies with grooves. These bougies are slightly conical, and twenty-five centimetres in length. They have six grooves, which are about a millimetre and a-half deep, and become shallower towards the point, stopping entirely at about five centimetres from the point, so that the front part of the bougie is entirely smooth. (Weiss and Son, of 287, Oxford-street, London, manufacture these bougies, for which an English patent has been applied for.) Into the grooves of these bougies I pour a paste, which hardens at the ordinary air temperature. With respect to the composition of the paste, I recommend the following:—Cacao butter, 100 parts; nitrate of silver, 1 to 1.5 part; balsam of copaiba, 2 parts. (Old-standing cases require more than one part of nitrate of silver, but I should not recommend more than 1.5.) I tried, also, other preparations, such as resorcin, iodoform, zinc, and iodnatrium, but found them all inferior to the nitrate of silver. With regard to the preparation of the bougies, I must lay stress on the fact that the salve must not be heated too much, for in that case the nitrate of silver would be reduced to silver and would be inefficient. Therefore, put about two teaspoonfuls of the paste into a small vessel, and heat it slowly and carefully. The vessel must not become so warm that it cannot be touched with the bare hand. Such a degree of heat is not necessary to dissolve the paste, and, as I have shown, is injurious. Neither is it necessary to wait until the entire contents of the vessel are melted, for if so the already dissolved salve becomes too hot and reduced. After dissolving, the salve is poured over the bougie, which is horizontally laid over a vessel to catch the drippings. After the salve has become hardened, the bougie is smoothed with any sharp-edged tool. Care must be taken that the smooth front

part of the bougie is left uncovered by the salve. Before using, draw the bougie several times through the hand, the warmth of which will cause sufficient of the salve to melt to lubricate the metallic surface of the bougie. The smooth front part of the bougie is rubbed with glycerine, so that the instrument, if the size corresponds to the diameter of the urethra, will easily pass. The grooved bougie leads the salve beyond the narrow places. At the temperature of the body the salve melts in one minute.

The greater efficiency of medicaments in this form over injections is clear, as the oily cacao butter will keep the ingredients in closer and longer contact than water. As to the glands and laminae of the urethra, it is probable that the thick fluid matter enters them more easily after they have been dilated by the bougie. Of the bougies described, I use Nos. 18 to 23, French (Charrière). I never use smaller than No. 18, but prepare the urethra with soft bougies until this size will pass. As soon as this is accomplished, I begin the cure with my grooved bougies, which I pass daily. If there is difficulty in passing No. 18, I employ the same sized bougie the next day, and then pass on to No. 19, etc.

After using these bougies, I have never witnessed a case of chill or fever, but I will not say that this could not occur just as after passing ordinary bougies. The pain or disagreeable feeling is not greater than that caused by the introduction of any other instrument into the urethra. Nay, the well-known burning in the urethra frequently experienced by patients in passing urine after the first application of the bougie will often be entirely absent. The longer the bougie is left in, the more favourable is the effect on the infiltration. Some patients feel burning and tenesmus after a few minutes, others after half an hour, and others still later. The time during which the bougie may remain in is dependent on these circumstances. Although the salve is so prepared that it cannot injure the normal parts, I avoid introducing it unnecessarily into the posterior portion of the urethra, whence it would flow into the bladder. I effect this by passing the bougie, in a case of gonorrhœa anterior, only so far that its point just touches the musculus sphincter vesicæ internus. As the grooves with the salve begin at a distance of five centimetres from the point, none or very little of the salve will flow into the posterior urethra. In a case of gonorrhœa posterior I push the bougie further, so that its grooved part lies in the partes membranacea and prostatica. Here we cannot avoid a little of the salve flowing into the bladder. The results I have obtained with this treatment are satisfactory. On an average, I succeeded by ten applications to effect a cure of cases of chronic gonorrhœa which had before proved very obstinate. In a few cases twenty and more applications were necessary. Frequently, after using a very small number of bougies, a striking improvement was visible.

Whether a chronic gonorrhœa which no longer shows a secretion at the meatus will improve, can be decided by simply examining the urine with the naked eye. The quantity of gonorrhœal flakes, their size and length, will diminish with the gradual process of cure. The microscope teaches us that at the beginning the thick flakes are almost entirely composed of pus-corpuscles, while epithelial cells are but few. With the improvement of the chronic gonorrhœa, the quantity of pus-corpuscles diminishes, and that of epithelial cells increases, till at last but few pus-corpuscles are to be found here and there embedded in the epithelial cells. Thus we are enabled exactly to observe the different stages of chronic gonorrhœa. More than once I could readily, after two applications, perceive a difference in the composition of the flakes in so far as the proportion of epithelial cells to pus-corpuscles had changed in favour of the former. Altogether by this procedure I have cured about fifty obstinate cases of chronic gonorrhœa, which had resisted all other methods: twenty-seven of these had been cases of a year and a-half's standing, twelve of more than a year's standing, and others less.—*Lancet*, Feb. 6, 1886, p. 247.

83.—ON SYPHILITIC STRICTURE OF THE TRACHEA.

By J. DRESCHFELD, M.D., F.R.C.P., Manchester Royal Infirmary.

Syphilitic affections of the trachea may be classed amongst the rarer forms of syphilis. They may occur both in congenital and acquired syphilis, and in the latter may be observed both in the earlier and later stages of syphilis. In the earlier stage of syphilis we meet chiefly with tracheitis, condylomata, and mucous plaques. These affections give rise to no grave symptoms, and yield soon to treatment. The lesions which are found associated with the later stages of syphilis, are, however, much more serious, and often lead to death. These lesions are either gummous tumours or, much more commonly, syphilitic ulcers with surrounding infiltration, which by their cicatrization lead to stenosis of the trachea; or, by an extension of the ulceration, there may be perichondritis, necrosis of the cartilage rings of the trachea, with contraction and displacement of the trachea or perforation of the tracheal wall, with abscess formation in the mediastinum; or again, especially if the ulcer is situated in or near the bifurcation and involves also the large bronchi, there may be rupture into the pulmonary artery (Gerhardt, Kelly), or into the arch of aorta (Wilks). In most cases, however, death has resulted suddenly after the symptoms of tracheo-stenosis had existed for some time.

The symptoms produced by syphilitic disease of the trachea vary with the situation and extent of the ulcerations, and with the presence of syphilitic disease in other portions of the respiratory tract, especially in the larynx. In an analysis by Vierling, there

was an affection of the larynx in 30 out of 46 cases reported ; in 16 the trachea, with or without the bronchi, was found affected ; while in 5 the bronchial mucous membrane was the only part attacked.

The diagnosis of tracheal syphilis presents no difficulty when the larynx is also affected, and when there are other syphilitic symptoms. If, however, the trachea alone, or the trachea and the bronchi, are affected, the symptoms are those of stenosis, and the differential diagnosis between syphilis of the trachea and some mechanical compression of the trachea, either from an enlarged gland, a small intra-thoracic tumour, or an aneurism of the arch of the aorta, is not always easy.

The most prominent symptoms of tracheal stenosis are :—

1. Dyspnoea, most marked during inspiration, and especially so on any exertion of the patient. This, though a most prominent symptom, may occasionally be absent, though the obstruction to the entrance of air into the lungs may be very great, as in a case reported by Beger, where there was most marked narrowing of the bifurcation and of the bronchi by a gummous tumour.

2. A hoarse, weak, or croupy voice, even if the larynx be free from disease due to the weak air-current.

3. Swelling of the jugulars with every expiration, due to the abnormally increased pressure in the large veins within the thorax during expiration.

4. Slight downward movement of the larynx with every inspiration. This movement is much more considerable in stenosis of the larynx (Gerhardt).

5. The patient breathes easier with his chin depressed, as this causes relaxation and dilatation of the trachea. In laryngeal stenosis, on the other hand, the head is thrown back to facilitate the breathing (Gerhardt).

6. Retraction of the lower part of chest with every inspiration.

7. Loud inspiratory stridor heard best over the sternum, occasionally accompanied by a thrill to be distinctly felt over the place of constriction. Auscultation of the lungs reveals weak breathing and loud rhonchi, unless there be some lung complication. It often happens that the stricture is at the bifurcation of the trachea, and extends to one bronchus rather than to both. In such cases we have the characteristic symptoms of stricture of a bronchus (diminished fremitus, diminished breathing, and more marked inspiratory retraction of the ribs) on that side.

8. The laryngoscopic examination may enable us to see the affected part, especially if stricture is high up in the trachea or if the ulceration is extensive ; and the introduction of a sound through the larynx, recommended first by Demme, may in doubtful cases assist us in our diagnosis. In spite of these definite symptoms, the diagnosis between syphilitic stricture of and pressure on the trachea is sometimes a matter of great difficulty.

[Dr. Dreschfeld concludes his article with the narrative of a fatal case, which illustrates the difficulties which beset the diagnosis of this important, though rare condition. A brief abstract only of the clinical report can be given here. A man, 39 years old, had suffered for seven months from gradually increasing difficulty of breathing and slight cough, with but little expectoration. For four months the symptoms had been sufficiently severe to prevent him following his occupation. When seen in the hospital he was sitting up in bed, with his head bent forward, suffering great dyspnoea, mainly inspiratory. There was no dulness on percussion, and marked tracheal rhonchi were heard all over the chest. Less air was entering the left lung than the right, and the left radial pulse was weaker than that on the right side. The patient did not complain of any pain. There were no external evidences of syphilis, and the patient denied ever having had any manifestations. Dr. Dreschfeld made a diagnosis of stenosis of the trachea with participation of the left bronchus, and thought of syphilis as the cause. The patient died with suffocative dyspnoea in less than a month, iodide of potassium having been continuously administered in fifteen-grain doses. At the post-mortem examination a small circular ulcer was found about half way down the trachea; the edges of the ulcer were clean, the floor red and granulating. At the bifurcation, the wall of the trachea was very much thickened, and on its mucous surface a large cicatricial mass was seen, leading to a small ulcer; the left bronchus was found very much narrowed, and would scarcely allow a crow-quill to pass. Microscopic examination of the tracheal ulcer and appearances found in the liver seemed to remove all doubt as to the syphilitic nature of the lesion.]—*Medical Chronicle*, Dec. 1885, p. 177.

84.—ON SYPHILIS AS A CAUSE OF PHAGEDÆNA AND HOSPITAL GANGRENE.

By JONATHAN HUTCHINSON, F.R.S., Emeritus Professor of Surgery at the London Hospital College.

[In the course of the first Lettsomian Lecture on "Some Moot Points in the Natural History of Syphilis," Mr. Hutchinson makes the following very important observations upon the causal relations of the syphilitic virus to all forms of phagedæna.]

All will admit that syphilitic inflammations have a remarkable tendency to become phagedænic. This may occur in all stages of syphilis, and to all kinds of sores. It is not necessary that there should be any contagion of material from phagedænic sores; it is sufficient that there is syphilis, for syphilis in its purest form often leads to phagedæna. Phagedæna, as we see it in connection with syphilis, is almost invariably of spontaneous origin, or, in other words, caused by syphilitic inflammation, and not by phagedæ-

nic contagion. Its existence puts an end to all possible sexual exposure, otherwise we should probably often see it on the genitals as the result of contagion. There is every reason to believe that its products are contagious, and that they would probably produce phagedæna, and not syphilis. The specific virus of the latter is probably destroyed in the gangrenous process. When phagedæna spreads as such by contagion, we encounter it, as I shall have to assert directly, under other aspects, and not as a venereal disease. Now, the chancroid type of inflammation is possibly only a sort of minimised phagedæna, and differs from it only in degree. Its virus is probably produced under similar conditions, and it is curable under the same methods of treatment. The fact that a chancroid in a woman does not absolutely disqualify for sexual congress, makes it possible for it to be transferred as such by direct contagion. This fact it was which misled Bassereau and his followers into the belief that the virus of these sores possessed specific individuality. Probably it is not so; and it is still likely that many chancroids originate spontaneously in the same sense that phagedæna does; that is, they result not from contagion from a sore of the same kind, but from a modification of a syphilitic inflammation by peculiarities of the individual. Be this as it may, it is to be freely admitted that chancroids are very contagious, and that they reproduce themselves with closely similar features. Their virus, if not specific, is at any rate well specialised.

Hospital-Phagedæna.—Closely connected with this topic, and of great clinical interest, we have the question of the origin of hospital-phagedæna from syphilis. It is not uncommon to see the disappearance of hospital-gangrene claimed as one of the triumphs of antiseptic practice. I hold this to be a mistake, and I have the less reluctance in saying so, because I feel sure that no one estimates the legitimate victories of antisepticism more highly than myself. Its great teacher and his school need no borrowed plumes. The truth respecting hospital phagedæna is, that it did not exist in one in ten of our hospitals at the time when antiseptics came into vogue. It is not a disease which is always with us, but rather one which comes occasionally, prevails extensively, and then disappears. It is not due to neglect of cleanliness, nor to atmospheric infection; it does not occur from overcrowding; but it is caused by a special form of contagious pus. All the facts as to its history support this creed. During our last epidemic of it at the London Hospital, one large ward alone of the whole surgical department remained exempt. It was not less crowded than the others, and it received precisely the same class of cases; but it, unlike the others, never took patients from the infected wards. Hence its escape from contagion. That epidemic ended in 1864, and from that time onward there have been no cases whatever in the hospital. The origin of that epidemic was, I had good reason for believing, the admission

of a case of syphilitic phagedæna into a surgical ward. The first case occurred in the next bed to this patient. Mr. Pollock told me that he had arrived at the same conclusion as to an epidemic of the disease in St. George's Hospital. I have mentioned these facts before on more than one occasion; but the following is a new one, and it gives them strong support. A few years ago, a boy was brought into the London Hospital in consequence of his having been attacked by phagedæna in a workhouse-infirmiry. He was suffering from acute periostitis of the tibia. A free incision had been made, and this wound it was which had become gangrenous. Its edges were swollen, ragged, and discoloured, its surface covered with pultaceous secretion. It presented, in fact, a good example of what I had often seen during the epidemic referred to, and never since. I had commented at the bedside of the boy on the case, and I had mentioned my belief that hospital-gangrene usually began from syphilitic cases. We could find no suspicion of syphilis in the boy. A house-surgeon present afterwards gave me what was probably the correct information. There had been admitted under one of my colleagues a very bad case of syphilitic phagedæna from the same workhouse, only a little before the lad. On inquiry, I found that in the workhouse the man's prepuce had been slit up with the same instruments which, some time later, had been used for the boy's leg; it was possible even that the same sponges had been used. Here, then, to say the least, was a possible source of contagion. The suggestion that hospital-phagedæna takes its origin from syphilitic phagedæna, would fit well with the fact that it often prevails in military hospitals, especially when crowded, in time of war. These are just the places where we may expect to encounter occasionally neglected and unhealthy venereal sores.

If we admit that what I have stated is very probable, it becomes of interest to glance at the facts of the malady in question. Hospital phagedæna is very contagious, and it spreads by contagion only. The previous health of the patient matters nothing; nor the salubrity or otherwise of the ward. Excepting in varying degrees of severity, all its cases are alike; they tend to the same results, and are to be cured by the same means. It is a well specialised disease. It never leads to constitutional syphilis. Accepting the hypothesis of its syphilitic origin, we have then a parallel fact to what is observed in the case of the chancroid. A specialised contagium (pus) has been bred up, which can produce its like wherever inoculated, but which does not contain the virus of syphilis. Both the chancroid and the phagedæna are the products of a poison originating in a syphilitic inflammation, but which in neither case can induce syphilis. It is easy enough to see that, if once the particulate virus of syphilis have died out of a secretion, the latter may then be propagated over and over again without the slightest possibility of reproducing the defunct specific elements. It is

not, therefore, to be wondered at, that neither the chancroid nor hospital-phagedæna, although appanages of syphilis, ever, when once negatively specialised, by any chance produces that disease.

It is a question about which there is still some debate, whether the infecting or the non-infecting sore is the most liable to phagedæna. My own experience would lead me to a very definite opinion, that almost all sores which are attacked by this process are true chancres, and that it occurs at a stage too late to prevent absorption. It is, in fact, a concomitant of a true syphilitic inflammation, and does not usually happen until induration has taken place. It denotes unusual susceptibility to the influence of the virus, and it is often followed by very severe secondary symptoms. I will by no means deny that the retention of irritating secretions, as in phimosis with concealed sores, may give rise to gangrene of the foreskin in cases where no syphilis exists. If, however, a typical phagedænic process be set up, and spread, I believe that it will almost invariably be in association with true syphilis. I have suggested that the chancroid process is allied to that of phagedæna; but it appears to be well specialised, and quite capable, under most circumstances, of maintaining its individuality. When once its peculiarities have been declared, the sore seldom deviates much from its type. If it do become aggravated, and spread at its edges, such spreading is only of the very mildest form of what we mean by phagedæna.

A knowledge of the fact that phagedæna usually goes with true syphilis is of much importance for purposes of retrospective diagnosis to those engaged in medical practice. Not unfrequently, with symptoms of visceral or nerve disease, an examination of the genitals is made in order to seek for scars. Whilst some have assumed that scars on the penis, or its extensive malformation by bygone phagedæna, imply the probability of syphilis, others have asserted that they rather favour the belief that the disease was not true syphilis. My vote would go with those who regard them as important though not conclusive evidence of constitutional disease. I have very seldom seen scars on the penis in patients who had not had syphilis, and still more seldom the evidences of phagedænic action. — *Lettsomian Lectures, British Med. Journal, Jun. 9, 1886, p. 55.*

85.—ON THE INCUBATION-PERIOD OF SYPHILIS.

By JONATHAN HUTCHINSON, F.R.S.

It may seem strange that, after the amount of attention which the natural history of syphilis has received from many excellent observers, the length of the incubation-period of chancre should still remain a moot point. The differences of opinion are, however, very great. Thus, Ricord said that induration occurs most frequently during the first or second week after contagion; never

before the third day, nor after the third week. Sigmund, of Vienna, dealing with 261 observations, found only three with an interval as long as three weeks, and none with longer; whilst in as many as seventy-one it was only nine days. Other observers have given longer periods; and Mr. Berkeley Hill, with unwearied love of accuracy, and making use only of experimental inoculations, has constructed for us a table which seems to prove that the average period is twenty-four days, the extremes being ten and forty-six. This table comprises thirty-seven cases. Fournier and Clerc give it as twenty-one days. It is admitted that neither differences in the source of contagion nor in the part affected make any difference in the length of the period during which the poison remains quiet. If I were to speak from my own experience only, I should be inclined to make the incubation-period longer than any of the observations just quoted, and am obliged to admit that the statements of Sigmund and Ricord are almost inexplicable. I can only suppose that there has been some misunderstanding as to what phenomena constitute the limits of that period, or that it has even been counted, not from the date of the contagion, but from the first appearance of a sore. In this last supposition I am countenanced by Dr. Taylor, of New York, the very able editor of the last edition of Bumstead's work. If by incubation-period we mean, as I contend we ought to do, the interval between contagion and the production of an induration which can be diagnosed, then I believe we shall seldom find it less than five weeks, and more often six. If we date to the first appearance of a sore, then it will be a week or ten days shorter, for the development of hardness takes that time. In these statements, we of course put aside the very numerous cases in which a sore is present almost from the first, the chancre having been a mixed one. To this class I would unhesitatingly assign all in which the period is said to be short, for it is not the fact that the soft sore always shows itself directly after contagion. I believe that the incubation-periods of uncomplicated infecting sores are far more regular than is supposed. When the data are obtained from the statements of patients, they are obviously exposed to much fallacy. Many and many a time has a patient, who had assigned a period so short as to be, to me, incredible, admitted, in cross-questioning, that he had also exposed himself to risk a few weeks earlier than the occasion he had mentioned. As regards unusually long periods, there is always the same doubt as to correctness of testimony. It will be seen that, in Mr. Hill's tables of intentional inoculation, in no case was the period longer than forty-six days, or rather more than six weeks. No aberrant case, either in the direction of very long or very short periods, that would bear investigation, has ever come under my own notice. I will briefly cite the following facts from my own observation, and leave them to make their own impression on your minds.

In the case of a medical man who vaccinated himself in the forearm from a syphilitic infant, the punctures, which had quite healed, became irritable on the twenty-first day, and were well characterised chancres on the forty-first.

In another series of cases of vaccination-syphilis, eleven patients received the virus on the same day. In all, the punctures, or vaccine-vesicles, healed; and in all they became irritable at the end of the fifth week, and were well indurated at the end of the eighth. In a father and son, it was especially noted that the irritation at the site of puncture began on the same day.—*Lettsomian Lectures, British Med. Journal, Jan. 9, 1886, p 57.*

86.—ON THE RELATIONSHIP OF TERTIARY TO SECONDARY SYPHILIS.

By JONATHAN HUTCHINSON, F.R.S.

The older doctrines taught that there exists between these an essential difference of kind and of tendency, and that certain forms of disease can be named as "secondary," and certain others as "tertiary." Thus it has been supposed that the viscera and nervous system suffer in the tertiary period only, and that there is at this latter stage a general tendency to ulceration, and to extension deeply, which is not observed in the secondary one. What has been named a "gumma," has been supposed to be characteristic of the tertiary stage. Opinions have, however, been gradually changing respecting several, if not all, of these points. Cases have been recognised in which the various conditions referred to were met with so early in the disease, and in such close combinations with each other, that the only explanation seemed to be that the disease had run an unusually rapid course, and had reached its last stage before it had well finished its first. By degrees we are, however, arriving at another interpretation of such facts, and are beginning to see that the old classifications of the phenomena cannot hold their ground, and that we must seek for other characters by which to distinguish the secondary and tertiary stages. Not, indeed, that the old observations were wholly wrong; this would be exceedingly improbable, and its mere assertion would very properly lead to much mistrust of any modern conclusion which might seek to supplant them. Speaking loosely and in a general way, it is still true that visceral affections, gummata, deep ulceration, and periostitis, belong to the tertiary stage; it is only when these facts are brought forward as if they were constant, and sufficient in themselves to form the basis of classification, that we are compelled to make protest.

Permit me to illustrate what I mean by the citation of a case. A young man, aged 21, too young, let me note, for it to be likely that he had ever had syphilis before, was admitted into the London

Hospital under my colleague, Dr. Langdon Down. He had still the remains of a hard chancre on him, and he was covered by a papular rash, which was ulcerating in places. The date which he assigned to the beginning of the affection was only four months previously. He died suddenly and unexpectedly. The necropsy showed gummata in both testicles, in the spleen, and in the heart, death having been caused by the softening and ulceration of the latter.

Here, then, we have conditions, which are usually counted tertiary, occurring before the primary ones have had time to disappear. If the case were one without companions, we might put it aside; but it is not so, the fact being that it is very exceptional only in the circumstance that the patient died, and thus afforded an opportunity for the demonstration of conditions which are probably present but unsuspected in many others.

I have myself known another case in which a young man, not fairly over the secondary state of syphilis, died of diffuse gumma of the heart. Large gummata in viscera are common enough in syphilitic infants, who, at the same time, still present the ordinary forms of secondary eruption. In the adult, it is an everyday occurrence to observe symptoms implying periostitis, transitory disease of various parts of the nervous system, or even visceral affections, during the secondary period. It is not so much in the special location or even the character of the morbid changes, as in their tendencies, that we observe a difference between them and the lesions of the tertiary stage. The gummata of the early period are small and numerous; those of the later one are large, and often few in number, or even single. Those of the early period easily disappear, either spontaneously or under mild specific treatment, whilst those of the tertiary stage persist, and grow indefinitely unless adequately met. Hence it may easily happen that the indications of internal disease in the secondary stage may often pass unnoticed, whilst those of the later one rarely escape discovery. We may argue this point in more detail in reference to two special symptoms which, as they occur in parts open to inspection, are not liable to the fallacy just mentioned. I refer to rupia and periostitis.

The Position of Rupia and of Psoriasis Palmaris.—It has been customary to claim rupia as definitely a tertiary symptom. This, I contend, is quite a mistake. It almost invariably begins within a year of the chancre, and often much earlier; and, if met with later, it is almost always in cases in which it has resisted treatment and lasted for long. The mistake as to its proper position has arisen from a too easy acceptance of the dogma, that everything that ulcerates is necessarily tertiary. But such is not the fact; ulceration, even to the extent of phagedæna, may happen not only in the secondary, but even the primary stage.

It would be beyond the scope of the present lecture, if I were to attempt to produce proof by the citation of cases that rupia does really occur in the early periods of syphilis. Such proof could easily be brought forward did time permit, but I must leave it for clinical observers to test the assertion for themselves. It is needful, however, to say a few words as to what is meant by rupia, and as to the conditions under which, chiefly, this peculiar and rare form of eruption does occur. We must not confound, under the name of rupia, all conditions attended by ulceration and scab; for this would allow the inclusion of certain lupoid affections which do certainly, as a rule, come much later. By rupia, we mean an eruption consisting of many distinct sores, which begin as bullæ, and tend to the production of conical crusts. There is ulceration of the skin beneath, but it is seldom deep, and there is a certain amount of infiltration, but never much. The face and limbs are its usual sites. Its sores are always round, unless two or more have become confluent, and it leaves round scars. The very fact that it is usually symmetrical sufficiently denotes its position as one of the secondary phenomena; but, although I claim that such is its place, it is to be clearly admitted that it is never one of the earliest. Unusually, I think, the ulcerating forms of eruption, of which rupia is one and ecthyma another, occur after a certain amount of treatment, and after the first eruptions, which were erythematous or papular, have quite disappeared. Often there has been an interval of good health, and all treatment has been laid aside. Sometimes, however, a papular eruption is converted into an ulcerating or rupial one apparently by too vigorous treatment. Sometimes the rupia happens apparently as a consequence of neglect of treatment. Very often, a peculiarity in the diathesis of the patient has been implied by the fact that his chancre inflamed and ulcerated. Thus a scar-leaving eruption often follows a scar-leaving chancre.

The belief that the occurrence of rupia, or other ulcerating eruption, makes it desirable to avoid mercury and use only iodide of potassium, is, I think, fast losing its hold. Although, unquestionably, mercury does sometimes disagree in such cases, we know that it is chiefly a question of dose and mode of use, and that when these are well arranged it will almost always cure.

Rupia, as a rule, is not seriginous; it does not creep at its edges; its crusts, when typical, are always circular. The shilling-like scars which it leaves are well known. There is, however, another and an allied condition, possibly sometimes a direct consequence, in which the morbid process is allied to lupus. In this the round form of the sore is lost, for the inflammation spreads at its edges by local infection, and allows healing in the centre. Thus a horse-shoe form is assumed; or it may be that large irregular patches, with crescentic edges, become involved. This disease may last in-

definitely unless carefully treated, and often does extend over several years. It seldom, I think, originates *de novo*, as a genuine tertiary, years after the secondary symptoms have all disappeared, but is more commonly a sort of continuation of an imperfectly-treated eruption of early date; it ceases to be a generalised eruption, is no longer arranged with any tendency to symmetry, and it is often more amenable to local than to internal treatment. In all these features, it denotes a sort of transition position.

Syphilitic Lupus.—It may here be convenient to discuss briefly the moot question as to whether there is such a disease as syphilitic lupus. Our answer to such question must depend upon the definition of our terms. That there are syphilitic inflammations of the skin which affect by preference the parts most frequently attacked by lupus, which spread at their edges just as lupus does, which, like it, leave scars, and which, even to those most experienced, present throughout features which render it very difficult to decide whether the condition is common lupus, or due to syphilis, everyone will admit. These diseases, of which we have as great a variety as we have of lupus itself, are to be cured by specific treatment; and in this they differ *toto cælo* from common lupus. I fail to see that any clinical convenience is served by refusing to call these affections syphilitic lupus, using the term in the same sense that we speak of syphilitic psoriasis and syphilitic lichen. They are the syphilitic imitations of the typical malady. The most acute and rapidly destructive of these is what has been termed erosive lupus, an almost phagedænic affection, which usually attacks the nose, and which is more frequently seen in inherited than in acquired syphilis. Good examples of it are, however, occasionally seen in the acquired disease, and always, I think, at a distance of more than a year, and usually of several, after the primary disease. From this acute affection downwards, we have the most varying degrees of severity in syphilitic lupus. As a rule, all lupoid affections rank as tertiary; and it would scarcely be too bold a generalisation to say that all the tertiary affections of the skin are of a lupoid character. I mean by this that all are serpiginous, all unsymmetrically arranged, and that all leave scars. We have done with roseola, psoriasis, lichen, and even with rupia; and if the skin at this stage suffer at all, it will from a tubercular affection which creeps at its edges, persists indefinitely unless cured by treatment, and leaves scars. It is, in fact, a serpiginous gumma of the skin. This generalisation is a most important one, as giving us a clue to the character of the affections of the deeper parts (hidden from view) which occur in this stage. They, like lupus, may be serpiginous, the cell-growth tending to infect the edge of the patch, and thus cause persistent spreading. Such a pathological hypothesis would well explain what we witness in such affections as ophthalmoplegia externa, in which we find indications of slowly

spreading central disorganisation, and corresponding external paralysis, the process often going on for years. The same remark applies to locomotor ataxy, if it be admitted that it is sometimes of specific origin.

Periostitis.—Having thus discussed the relationship of the different forms of skin-disease to the different stages of syphilis, we must next try how matters stand as regards the bones. It will be asked, Are not all nodes necessarily tertiary? If by a node we mean a local periosteal swelling, most certainly they are not. Periostitis is a very common phenomenon in the secondary stage, as denoted by what is called syphilitic rheumatism, osteocopic pains, and sometimes by local swellings of considerable size. In some cases, the periosteal pains of secondary syphilis are very severe indeed, and now and then we observe swellings on the skull or tibiæ which might rival those of the later stages. It is quite true that the periostitis of the tertiary period differs much in its tendencies from that of the secondary; it is more lasting, more apt, on the one hand, to end in softening, and, on the other, in permanent sclerosis. It is in these differences of tendency, however, that we distinguish the two in the different stages; not in the tissue which is attacked. Permit me to note that the differing tendency of periostitis is very marked, also, in congenital syphilis. Young infants, whilst suffering from secondary eruptions, often suffer, also, from multiple periostitis on the skull bones, and also on those of the limbs. It is, however, at this stage, for the most part, a transitory and easily curable process; whereas, eight or ten years later, another form may be expected which will produce much more conspicuous and more lasting lesions.—*Lettsomian Lectures, British Med. Journal, Jan. 22, 1886, p. 141.*

87.—ANTIDOTAL INFLUENCE OF MERCURY IN SYPHILIS.

By JONATHAN HUTCHINSON, F.R.S.

Amongst the questions which may fairly be considered as moot points in the natural history of syphilis, we may count those which concern its relation to the specifics used in its treatment. The claim of mercury to rank as an antidote to the virus of syphilis has, I think, been much strengthened by the results of recent experience, and it is one of extreme importance in reference to a very important department of general pathology and therapeutics. In connection with it, we may suitably bear in mind the great repute which weak solutions of corrosive sublimate have recently obtained in the prevention of septic processes in wounds. In former times, when mercury was given in large doses and allowed to produce violent effects, and when of necessity its administration was frequently interrupted, the development of constitutional symptoms in some form or other was so constant, that much hesitation was

felt by all as to the use of such a word as "antidote." Of late years, we have got into the habit of using only small doses, and giving them over very long periods, carefully taking every precaution against the necessity for interrupting them. I will state briefly my own rules of practice, and the impressions which I have formed as to results. As those impressions have been formed for many years, chiefly in private practice, and amongst patients concerning whom I have often had opportunities for obtaining information over long periods, I am in a position to speak with much more confidence as to results than would otherwise have been the case. The remedy which I have used almost exclusively has been the grey powder, and the dose usually not more than a single grain. This dose I have given from three to six times in the course of twenty-four hours, according to circumstances, and seldom for a shorter course than six months in the first instance. If this dose be given to a patient with an indurated sore, but in whom, as yet, no secondary symptoms have appeared, the result will usually be that none will occur. If the rash have already made its appearance before the treatment is commenced, as a rule it quickly fades; and so long as the patient continues the remedy he remains free. The exceptions to completeness of freedom concern chiefly the mouth and throat.

It is very seldom indeed that there is any difficulty in keeping the skin perfectly clear. In the tonsils, and sometimes in other parts of the lining membrane of the mouth, sores will occasionally form; and, although these are in a general way amenable to an increase of the dose, and to the local use of the drug (as a black-wash gargle), it is to be admitted that there do occur occasionally cases in which it is difficult to be sure that the supposed remedy does not aggravate the disease. In a large majority of cases, however, in which, beginning at an early period, the patient is put under a six months' course, during the last four of this period he is absolutely without symptoms and apparently in excellent health. If, however, at the end of this time, the remedy be stopped, in many cases a very remarkable proof of its antidotal efficacy will occur. We shall find that it was it, and it alone, which had held the poison in inactivity. For, in spite of the long period of absolute quiescence, an outbreak of symptoms will occur within a few weeks of its suspension. This outbreak is usually a very mild one, but is, nevertheless, very definite, and it is general. It usually takes the form of an erythematous or lichenoid eruption, occurring chiefly on the trunk, and is not often attended by sore-throat or other symptoms. Although it may now and then be papular, I have never seen it approach in severity the eruptions which we often see in cases which have not been treated. In more than one case, I have known this eruption which comes after the suspension of mercury mistaken for scarlatina. It is always, I believe, very

easily amenable to mercury, disappearing in the course of a few days, or at most a week or two, and seldom recurring. There is, however, another very peculiar eruption, which sometimes persists for a long time, and recurs over and over again. I have been in the habit of speaking of this as the "after-bath eruption." It is a very trivial affair, and consists chiefly in the appearance of a number of faintly-marked erythematous rings, which are seen only on sudden exposure of the body to cold, as on first getting out of bed, and especially after the use of the morning bath. Nine out of ten patients notice them only under the latter condition, and they generally fade away almost completely after a few hours. These rings are seen most frequently on the arms, but sometimes on the trunk and thighs. They are unquestionably syphilitic, and the liability to them usually ceases on recurrence to mercurial treatment. They are seldom or never attended by other manifestations of the disease.

Respecting the results of treatment in general, I believe I may with truth assert that I have never, in any single case of late years, seen a severe eruption on the skin develop itself after a mercurial course of the kind indicated had been commenced. It is a fact, then, that the remedy manifests antidotal power in that it can not only remove, but anticipate and prevent, by far the most conspicuous manifestations of the disease. I cannot make so strong an assertion respecting some other of the symptoms of the later part of the secondary stage. I have seen iritis, and neuro-retinitis, occur occasionally, with even some severity, in cases which had been well treated; and, in very exceptional instances, I have witnessed disease of the arteries of the brain. In a large majority of cases, however, a six months' course of small doses appears to be adequate to the complete and permanent cure of the disease. No relapses occur, and the patient remains afterwards in excellent health.

We may admit that it is a question which must be left open for future accumulations of evidence, whether the antidotal repression of the secondary stage is influential in preventing the development after a long interval of tertiary symptoms. That it does not do so always is abundantly proved. I cannot but believe, however, that it does exercise a very powerful influence in that direction, and that the diminishing frequency and severity of tertiary disease in modern times is largely due to better regulated treatment. It is often matter of remark that those who do suffer seriously after long intervals are those in whom the early symptoms were exceptionally slight, and treatment in consequence not persevered with, or almost wholly omitted.

In urging the antidotal efficacy of mercury as a fact in the natural history of syphilis, I have not in the least wished to claim superiority for the special mode of administration which I have

mentioned. I do not doubt in the least that the advocates of other methods, such as those by inunction or by the vapour-bath, can produce just as good results. The essential point seems to be that the treatment should be very long continued, or if not, that short courses should be repeated without waiting for symptoms. The method which I have advocated is simply one of the most convenient.

It is a question of some interest whether syphilis has any tendency to develop itself by, so to speak, a series of successive waves. It is certain that we do observe periods of very sudden and acute outbreak, and that these sometimes follow after others of complete quiescence. Such facts are especially noted during the development of the secondary phenomena; but it happens, every now and then, at much later periods, that a patient who has been well for years suddenly has new symptoms occur, not only in one, but in several different parts of the body at once. This is, however, infinitely more rare than are the sudden and acute recurrences of symptoms which we often witness during the first year of the disease. The fallacy which besets our observations on this point is the one which meets us at all turns in our attempts to study the natural history of syphilis; it is this, that the phenomena may be connected with the intermittent employment of antidotal treatment. The worst cases of rupia which we see occur usually under these conditions, the patient having been cured of a first and much milder outbreak of eruption, and then, after an interval of some months, becoming the subject of a more severe one.—*Lettsomian Lectures, British Med. Journal, Jan. 23, p. 143.*

88.—ON A SEVERE FORM OF RUPIA.

By JONATHAN HUTCHINSON, F.R.S.

There is a very severe form of rupia, in which the ulcerations coalesce over large surfaces, and the crusts thus lose the typical limpet-shell form. Of this I have seen but very few examples, and the two which have made the most impression on my memory were almost exactly alike. The violence and the suddenness of the second outbreak were, in each case, most marked. The first occurred to me at the London Hospital, nearly twenty years ago, in the person of a young man named K——. I had treated him for a mild attack of secondary symptoms with the usual papular eruptions, and he had got, apparently, quite well. He desisted from treatment, and I lost sight of him for some months. At the end of this time, he came back with a vesicular and bullous eruption just beginning on his face. In conformity with the opinion of those days, that mercury ought to be avoided for such eruptions, I gave him the iodide of potassium. The eruption blazed up with extraordinary quickness, and in the course of a week his whole face was covered with crusts; there were many also on

his limbs. He became extremely ill, was confined to bed for several months, and was so much emaciated that we thought he would die. At first a mixed treatment of iodide of potassium and mercury was used, and for a while it seemed powerless. Ultimately, under the influence of mercury alone, the man recovered, but with a lamentable amount of scarring. Almost the whole of his face was involved in scars, and his lower eyelids were displaced downwards.

The exact counterpart of this case came under my observation not long ago. A young gentleman of fortune suffered from primary disease at Christmas, 1884. He had a sore, which was both exceedingly hard and deeply ulcerated. This sore healed under the influence of full doses of bichloride of mercury, leaving a deep depressed scar in the glans. In April, after about three months' treatment, it was laid aside, as the patient appeared in excellent health, and had had neither rash nor sore-throat. Through the summer he remained well, but towards the end of September what he described as a slight red rash, which lasted only a few days, occurred on the chest. So far as is known, no specific treatment was used for this. No sooner had it faded, however, than some blisters appeared about his lips, and, spreading with great rapidity, in the course of ten days or a fortnight covered his whole face and neck. At the same time, others appeared on the buttocks, and a week or two later all over his limbs. The trunk, with the exception of the buttocks, remained free. The bullæ became confluent, and large heaped-up crusts, covering areas as large as the palm of the hand, were formed. The ulceration was deep, and on the back of one hand the tendons were exposed. For nearly a month, the disease continued to develop, in spite of the use of specifics. The patient was confined to bed, and was in the most loathsome condition. He became exceedingly emaciated. The treatment under which he finally recovered was the use of the bichloride of mercury in doses of one-eighth of a grain with five grains of iodide of potassium, the sores being dressed very liberally with a weak nitrate of mercury ointment. When I saw him in the early part of December, he was still confined to the house, though not to his bed. His face, with the exception of two small patches, one in the middle of each cheek, was wholly involved in scar. The lower lids were everted, and dragged down to the utmost possible extent. The alæ nasi were destroyed, and the contraction of the scar around his lips had everted the prolabia, and so fixed his mouth that he could with difficulty open it. The cicatrization of the skin of his cheeks had so much contracted them that it made the mucous membrane bulge between his teeth, so that he bit his cheeks in eating. The scars left on his neck, shoulders, arms, and hands were very peculiar; few of them were quite round, but all were abruptly margined, and in many cases it was clear that they

resulted from a confluent group of bullæ. Most of them were slightly raised, and looked as if they were in an early stage of keloid; but I was assured that their thickness was diminishing, and not increasing. Most of them were of a deep purple colour, but a few were quite pale. The scars on the legs were purple, almost to blackness. The buttocks were covered by a great number of little button-like scars, and on these parts there were no large ones. The healing was complete on all parts, with the exception of two or three spots on the legs. The symmetry in the arrangement of the scars was almost absolute.

Several important points are to be noted in this case. First, the disease, which had fallen with such great severity on the skin, had entirely avoided the mucous membrane. There had never been any sore-throat, nor, with the exception of a slight soreness of the gums from the mercury, any sores in the mouth. Secondly, the location of the eruption was on the limbs and face only. If we count the scapular regions as belonging to the upper extremities, and the buttocks to the lower ones, there was not a single spot on the trunk. Thirdly, the arrangement of the eruption was more like that of psoriasis than of a syphilide. Thus, there were large livid scars on the tips of the elbows and fronts of the knees, and on the backs of the hands; whilst the fronts of the arms and the palms were exempt. Fourthly, the scalp had been throughout absolutely free. Fifthly, the subsidence of the eruption on all parts under the influence of mercury had been most definite and complete, although in the first instance this drug, which was begun early, had seemed to exert no influence in preventing the outbreak.—*Lettsomian Lectures, Brit. Med. Jour., Jan. 23, p. 144.*

89.—SYPHILITIC ULCERS OF THE PALATE AND PHARYNX.

By JONATHAN HUTCHINSON, F.R.S.

The question as to whether deep ulcerations of the palate and pharynx, when met with in young persons, are usually due to syphilis or to scrofula, is one of great interest. I long ago ventured to record, as the result of some observation, my conclusion that it was rare in these cases to meet with syphilitic teeth; and I felt obliged, in not a few cases of this kind, to leave the diagnosis uncertain. As the result of further observations, I may now say that, year by year, the balance of evidence has more and more inclined towards the creed that such lesions are almost always syphilitic.

We admitted into the London Hospital a lad who had a perforating ulcer of his soft palate, almost phagedænic. He was cured by cauterisation of the ulcer. The most careful examination of the lad himself and of his family history failed to elicit a single fact supporting the suspicion of inherited taint. His teeth were of good form; his physiognomy was good; he had not suffered from

either choroiditis or keratitis. So the case stood. A year later, this same patient came to me at Moorfields for his eyes, and passed through a characteristic attack of interstitial keratitis. Of late years, I have seen no case of deep ulceration in the throat in a young person without being able to make the diagnosis of inherited syphilis probable.

Some years ago, Dr. Wilks was kind enough to lend me, from his private library, a most interesting religious tract, which bears upon this subject. It was an autobiography, printed before I was born, which contained an excellent portrait of the heredito-syphilitic physiognomy. It is entitled, "The Conversion and Subsequent History of Benjamin Lawson, an Afflicted Youth, deprived of his Speech by Scrofula; on account of which he was for nine weeks an indoor patient in King's Ward, St. Thomas's Hospital, in the year 1815." The portrait prefixed showed the bridge of the nose sunk level with the cheeks, and the forehead large, with prominent frontal eminences. The subject of the autobiography records that he was born in 1798, in Coppergate, York, "of poor but honest parents." At the age of 12, he began to suffer from a very bad sore-throat, and subsequently had a discharge from his nose; at the age of 16, a loose piece of bone came out of his nose; at this time he was very feeble, but still worked as a fly-boy in a printing office. After this, bone continued occasionally to come away, and he was Mr. Cline's patient at St. Thomas's Hospital in 1815.

He recovered from a condition which appears to have been thought almost hopeless, and lived ten years longer. The precise cause of his death is not recorded; he mentions, however, a fact that corroborates the diagnosis of syphilis. Whilst he was in the hospital, his father had a bad throat; it had been bad three months, and still kept getting worse, so that he could scarcely eat.

"A kind female friend, Mrs. G., who called to see me, got my father visited by the Methodist society for relieving and communicating religious knowledge to the poor. The kind friend who came last to visit my father was a medical gentleman, who, on looking at my father's throat, told him, if he did not get into some hospital, he might soon be a dead man; he might get cured then, but he was dying for the use of means." He "got a letter from Middlesex Hospital;" and, when "he had been there but a week, he appeared much better. I was afraid to take anything solid, for fear it should stick in the hole in my palate and choke me; which, by the long progress of the disease, was as large as a shilling, directly over the throat; and, by the frequent loss of pieces of bone, occasioned such a vacancy that, if anything lodged there, it nearly caused suffocation, and almost choked me till I got it away. I got so hungry, I was afraid I should be starved to death; for, though the thick milk was very nourishing, yet I always felt hungry after it."

This narrative is, I think, valuable as evidence in favour of the

syphilitic nature of disease of the bones of the palate and nose, such as are frequently called strumous.

Permit me to mention one or two other cases illustrating the same point. A young man from S., aged 19, presented a good instance of destruction of the palate and nasal bones by congenital syphilis. His nasal chambers were one cavity, every trace of the vomer and turbinated bones having disappeared. The uvula and adjacent parts of the soft palate had been destroyed. His nose had fallen down considerably, and the right ala had been in part destroyed. In 1885, six years after the beginning, all the parts were soundly healed, and there appeared no fear of a relapse. His teeth were good, and his physiognomy showed but little peculiarity. No projections on the frontal eminences were recognisable by the eye, but to the finger they were distinctly so. There was a considerable osseous node on one tibia.

It will be seen that in this case, although the destruction within the nose was so extensive, there was but little else by which to recognise the diathesis. It might easily have been a case in which all hereditary taint might have been deemed to be absent. The node of the tibia alone revealed the taint, and it by no means decided the question as to whether we had to deal with inherited or with acquired disease. When I add that the boy was the youngest of his family, and that all his brothers and sisters were quite healthy, it will be seen yet more clearly how near we might have been to a mistaken conclusion. The final evidence was given by the family surgeon, who was cognisant of the fact that his parents had both had syphilis shortly before his birth, and that his mother still suffered. Such a case ought, I think, to be allowed very considerable weight, whenever, in the absence of history or of corroborative lesions, we may be tempted to say that destruction of the nasal bones or ulceration of the palate is of strumous origin.

A year or two after I saw this patient, his mother consulted me. She was the subject of locomotor ataxy, and had suffered, twenty years ago, severely from syphilis. Since ataxy is of comparative rarity in women, it is of interest to note this fact as to antecedent history.—*Lettsoman Lectures, British Med. Journal, Feb. 6, p. 241.*

90.—ON THE NON-OCCURRENCE OF CHRONIC SKIN DISEASES IN INHERITED SYPHILIS.

By JONATHAN HUTCHINSON, F.R.S.

The question which I next propose to consider is, as to whether there are any chronic skin-diseases which are caused by the inheritance of a syphilitic taint. We shall pass by those which occur in infancy; with these we are all sufficiently familiar. We know well that an infant born with this taint is very likely to display, during the first six months of life, various forms of eruption. We

know also that these are usually transitory, and that, if the child survive, it will in all probability be quite free from rashes before it is a year old. In a large majority of cases, and especially in those treated by mercury, the liability to skin eruption does not last more than a few months. It may be that condylomatous patches at the anus or on the lips may persist longer, or even originate later, but nothing which can be properly called a skin-disease is commonly seen. In inherited syphilis, we seldom witness the relapses which are common in the eruptions due to the acquired disease. We look at later periods for the results of former skin-affections, for fissures at the angles of the mouth, for little scars or pits on the face and other parts, and we value these as evidences which help our diagnosis, but we never expect to see any extant eruption. The skin may be pale, thin, abnormally soft, but it does not show any liability to inflame. I am stating broadly the general fact: I purpose now to examine the question in a little detail; to ask whether this suggested immunity applies to all periods, or only to those immediately following infancy.

Before we proceed further, permit me to remind you that the infant who inherits syphilis gets the disease in a different manner from that which obtained in the case of its parent. I hold that it is almost certain that in each instance a particulate and living virus passes into the victim's fluids. The infant who inherits syphilis does not simply take over from its parents tissues which have peculiar proclivities to disease, as in the case of inheritance of cancer, gout, or scrofula. It takes over, *plus* the peculiar tissues, a virus which is capable of multiplying in its blood, and of producing a somewhat acute febrile illness; a virus which, whilst it is active, makes its bloods and fluids contagious, but which after a time ceases to be active, and loses its contagious properties. In this important feature, the inherited and the acquired forms are alike; both pass through a definite stage of secondary symptoms; but, as regards the primary stage, they differ in a very important and possibly a very influential point. In the acquired disease, the virus in the first instance breeds in a group of epithelial or epidermic cells, whereas, in the case of the infant, there is no local breeding; but it exists, it may be in the blood, it may be throughout the body, from the first. I will assume that we are all aware that, in many cases of inheritance—perhaps almost all—there are at the time of the child's birth no signs of the disease. The virus is latent, and it appears to be necessary that respiratory processes shall have been carried on for a certain time to enable it to assume activity. Most syphilitic infants look quite well when born, and only begin to be ill at the age of a month or six weeks. At the age named, and for a month or two afterwards, they often suffer very severely. To return to my point, it is conceivable that the special nidus of first growth of the virus may have a modifying influence on its later

tendencies, and that which has begun its life in mucous or cutaneous tissue may retain ever afterwards a proneness to attack these. I scarcely think, however, that this hypothesis is the correct one, for I shall have to assert presently that not only is the skin comparatively exempt from attack in the later periods of inherited syphilis, but that the nervous system in a scarcely less degree shares the immunity.

Let us ask for a moment how the skin behaves in cases of acquired disease. Well, it usually displays a general and symmetrical eruption during the secondary period, and this is usually cured by mercury, or disappears of itself. There remains, however, a great risk, even in the cases of most rapid and complete disappearance and of most efficient treatment, that a recurrence of the eruption may occur. The patient may have a rupia which may last him a year or two, on and off, or he may have milder symptoms, which we sometimes term "reminders," amongst which psoriasis palmaris, and erythematous rings on the trunk and limbs, which come and go, are amongst the commonest. Who ever saw a child with psoriasis palmaris, or with syphilitic rupia? I am speaking, of course, of post-infantile periods. But even commoner in the adult than those which I have mentioned, though occurring at a later period, are the various forms of syphilitic lupus. These may vary in severity from the most superficial form of serpiginous erythema to the most exaggerated types of the lupoid tubercle, and they may occur at periods of many years after the original taint. As a rule, we never see such diseases in those who have inherited their taint. What I have said applies not only to the skin, but to the mucous membranes also. We do not see, in those who have taken the disease by inheritance, the ulcers in the mouth, the sore tongues, the strictures of the rectum, with which we are unfortunately so familiar in adults. I appeal to the general experience of all who have seen much of inherited syphilis for confirmation of statements. I shall now proceed to examine the exceptions to them.

First, then, let me grant that there is a rare form of lupus which is directly due to inherited syphilis. It occurs usually at about the same age as the interstitial keratitis, that is, from five years old to adult life. It differs from common lupus, and even from the forms of lupus which occur in connection with acquired syphilis, in that it is never preceded by any tubercular stage, but is from the beginning erosive, or even phagedænic. It is, in fact, a form of phagedæna, but it attacks usually the favourite position of lupus, the nose. Its progress is rapid, and it may in a few weeks destroy the whole nose, and spread upon the cheeks. I have seen a good many well marked examples of this malady, but none during the last five years, and I do not possess a single good portrait of it to show you. I have, however, several photographs which show its ravages, and the kind of scars which it leaves;

these are very different from those caused by common lupus. The latter, as is well known, usually leaves a border of skin near to its margin more or less involved, it being difficult to get it absolutely well. This disease, on the contrary, heals absolutely, and the skin, up to its very edge, is left quite sound. Hence there results a puckered scar, which suggests that healthy skin had been more or less undermined, and its edges in the healing had fallen down together. This malady is never chronic. It may be cured in a few weeks by free cauterisation, and is always restrained, if not cured, by the iodide of potassium. The latter remedy is not nearly so effectual as cauterisation. In this fact you will see an item of evidence in support of the view which regards it as a form of phagedæna rather than of lupus. Such, indeed, it is. It seldom or never recurs after once stopped, and it never leads to anything resembling common lupus. Whether, indeed, it is originally a skin disease I am not certain. I have never seen it in its very earliest stage, and it may be that it usually commences as a periosteal or perichondrial gumma of the septum nasi. The septum is always to some extent involved.

By the side of this disease, which we may suitably call phagedænic lupus, and which has its exact analogue, and one far more common, in the acquired disease, we may place certain similar forms of ulceration which occur on various parts of the limbs in association with disease of the bones. Let me here remark that it is precisely in respect to the bones that the subjects of inherited taint suffer more severely than do those who have acquired it. Multiple nodes are in them very common, especially in the long bones; and a large proportion of the specimens of chronic sclerosis of long bones, so frequent in our museums, are from those who have been the sufferers from inherited taint. As a rule, the chronic periostitis which occurs under these circumstances does not lead either to suppuration or to necrosis. It leads to sclerosis and overgrowth in all directions. Sometimes, however, suppuration takes place, and the roughened bone is exposed, and may exfoliate. In these cases, a sort of secondary implication of the skin may result. As a rule, it is obviously secondary, and is limited clearly to the region of the diseased bone; but, in some, the appearances may suggest diagnosis of skin-disease from the extensive implication of the latter.

I show you here a portrait of a young lady from Dublin, in whom a very peculiar sort of lupus of the skin of the forehead occurred in association with periostitis. It is, however, so rare, that really I have never seen anything else exactly like it, so you will admit that, for practical purposes, I need not dwell upon this disease.

If you ask me whether there be not some forms of psoriasis, of lichen, or of eczema, which really acknowledge a parentage in hereditary syphilis, I unhesitatingly answer, No. I know of nothing of the kind. I have seen great numbers of those who, by

their teeth, their keratitis, or other conditions, could be recognised as beyond doubt the subjects of this taint, and I have scarcely seen one who was the subject of a chronic skin disease. I never saw acne either common or in any way peculiar in these patients. In numberless cases, nervous parents, or medical men almost equally anxious, have quoted to me the fact that a child was liable to spots on the face or body in proof that an inheritance of syphilis existed. Many a father, cognisant of dangerous antecedents in himself, has made himself miserable by suspicions of this kind, and in not a few have I seen that my most explicit assurances failed to remove his doubts. To you, I may now say that I do not remember a single instance in which I have recognised an eruption in a child after the first two years of infancy, which I believed to be syphilitic. I, therefore, feel justified now, when I am asked about eruptions when it is impracticable to examine the patient, in assuring those who consult me that, in all probability, the rash is nothing but a simple one, and that, as a matter of fact, inherited syphilis never discloses itself in that way. You will see that this observation, if it be trustworthy, is very important. I should examine, with the utmost interest, any cases produced by others, or published records, which might seem to confute it. For the present, I simply record my own belief.—*Lettsomian Lectures, British Medical Journal, Feb. 13, p. 279.*

91.—ON SYMMETRICAL SYNOVITIS OF THE KNEE IN HEREDITARY SYPHILIS.

By H. H. CLUTTON, Assistant-Surgeon to St. Thomas's Hospital.

The fact that the condition of which the title of this paper gives the most prominent feature has been little noticed in our surgical literature tempts me to make a few remarks as to its clinical features. I have myself but little doubt that it is due to hereditary syphilis, for the subjects of this symmetrical synovitis who have come under my observation have always given other evidence, either past or present, of the disease. My own cases, of which the notes have been carefully kept, are seven in number. Mr. Nettleship, who has also taken a great interest in these cases, has kindly given me the notes of three others, which I have myself seen at the time they were under observation in the Eye department at St. Thomas's Hospital. Mr. Lawford has also supplied me with another case during the last six months, which brings the total to eleven. I have, I am sure, seen many more of which I can find no accurate record; and I well remember, some years ago, soon after I began to take an interest in this subject, that Dr. Greenfield, who was then my colleague, drew my attention to several cases which had occurred in his practice. It must be remembered that my own cases were all out-patients, one or two only being admitted for a time to test the efficacy of splints and rest. The difficulty of

keeping any notes in the out-patient room must be my excuse for this deficiency. The disease is, I am sure, a rare one, so that only a few cases will come under the observation of any one surgeon; for since my attention has been directed to this condition I have only met with quite a small number.

The average age of the patients was about thirteen, but they were mostly between the ages of eight and fifteen. The predominant features of the disease were the symmetry of the affection, the freedom from pain, the long duration of the symptoms, and the free mobility of the joints on passive movement throughout the course of the disease. Its symmetrical character first led me to look for a constitutional cause, and there was no difficulty in seeing that the patients were the subjects of hereditary syphilis. I do not mean to say that no other constitutional diseases could possibly have produced such a symmetrical condition, but I do think that other joints besides the knees would probably have been at some time and in some of the cases affected in a similar manner if such diseases as rheumatism, gonorrhœa, or gout had been the cause. I have never seen both knee-joints fill with fluid, causing scarcely any pain or discomfort, whilst other joints remain quite free from any signs of inflammation, except in cases where there was distinct evidence, either past or present, of hereditary syphilis. The patient generally complains of stiffness in one knee, which is then found full of fluid, but not tense: on careful examination the other knee is also found to contain fluid, but not to the same extent as the one for which advice is sought. So that it is fair to assume that the knee to which attention has been directed by the patient has been affected some little time before he has felt any inconvenience. In a few instances there has been an interval of some months before the second knee has given the ordinary signs of synovitis; and in one case, which was that of a patient aged twenty, there was an interval of two years. All the other joints have been at the same time carefully examined, to make sure that such an insidious chronic synovitis has not been overlooked, but no joint affection could at any time be discovered elsewhere; nor was there any history pointing in that direction in any of the cases (except one) which are here recorded. The swelling in some of the cases was accompanied by considerable thickening of the synovial membrane; and in one instance, recorded by Mr. Nettleship, the observation is made that in some places it gave the "impression of loose bodies in the joint." But in the greater number this swollen condition was not so noticeable a feature as in the synovitis which may occur as one of the later manifestations of the acquired disease. The chief part of the swelling in the cases now under consideration seemed to be produced by an increased quantity of synovial fluid. The joints were never tense, but gave a sensation of flaccid fluctuation, as if they were only half full of fluid. The bones in the immediate neigh-

bourhood were not enlarged, and in only a small proportion of the cases was there any articular tenderness. Nodes were occasionally found, but generally some little time after the onset of the swollen joint, and at some little distance from the affected articulation. The peculiarly chronic nature of the synovitis is still further shown by the fact that in all the cases referred to in this paper the swelling has remained with scarcely any alteration for from three to six months, and in one instance for twelve months. In one case the symptoms followed a more acute course, but were distinctly attributed to a fall on the knees a week previously to the admission of the patient. Treatment by splints and rest in bed seemed to influence the course of the disease very slightly, for those that were treated in this way were as slow in getting well as those that had no local treatment whatever, for as soon as the splints were removed the effusion returned. The ultimate result in all the cases that came under my observation was the perfect recovery of the joints, the most important part of the treatment appearing to be the exhibition of anti-syphilitic remedies—mercury and iodide of potassium; but these drugs had not the same marked effect that they have in the acquired disease.

The facts as to hereditary syphilis are as follows. Of the eleven cases, active keratitis was present in nine, and in one other the corneæ bore traces of a former attack, so that in only one had the corneæ escaped. Five had the central incisors marked in the manner characteristic of the disease. Four had nodes on the tibiæ, and two were afflicted with absolute deafness of recent origin. The latter symptom was in each case devoid of any other obvious cause, and must, I think, be attributed to hereditary syphilis. Thus, every one of the cases quoted had two or more of the symptoms which, taken together, may be fairly held to establish the presence of the disease in question. Less reliable symptoms, such as those presented by the features, have not been mentioned; but they existed in most of the children who came to the out-patient room with symmetrical synovitis of the knee. The family history is proverbially difficult to obtain in this department of the hospital, and although in a few instances it tended to confirm the opinion already formed, it may be stated generally to have been of a negative character. I do not think that this disease has any relation to epiphysitis, which is so common in syphilitic infants, for there was no apparent enlargement of the bone, as has been already stated, and the swelling was quite uniform in outline. In epiphysitis the swelling is always more or less unilateral, for although the whole joint may be enlarged by consecutive synovitis, one side will generally be found larger than the other, with increased tenderness on the side affected; whereas in the symmetrical synovitis, to which allusion is here made, the joint is uniformly enlarged, and the synovial membrane appears to be the only part affected.

To recapitulate in a few words the principal features of the condition which was demonstrated by these few cases, one would say that the synovitis was symmetrical, affecting only the knees, that it was of a chronic and painless character, and that all the patients were the subjects of hereditary syphilis. I can offer no satisfactory explanation of the facts here recorded, but must content myself with drawing attention to a few clinical symptoms. At the same time I would like to point out that if the condition which is now under consideration be really due to hereditary syphilis, the similarity between interstitial keratitis and this symmetrical synovitis is so marked as scarcely to require any lengthened explanation. Both knees, like the eyes, are, in my experience, sooner or later affected, and often with an interval between the commencement of the symptoms in each joint. Both diseases are exceedingly chronic, and produce little or no destructive changes in the tissues involved, neither suppuration nor adhesions having occurred in any of the cases that came under my observation. They are also both liable to relapses, and not very amenable to treatment. The age of the patients is another and a striking point of similarity, for seven out of the eleven were between eight and twelve years of age. In two cases the symptoms arose at a much later date, but this also occurs in interstitial keratitis, so that even in its rarer forms it corresponds with that disease in this particular—that of the age of the patient. I am at a loss to explain why the knees should be affected in preference to other joints. It is probable that, with further observation, the knees will not be found to occupy this solitary distinction, and that other joints will be seen to be affected in a similar manner. But up to the present time I have not seen this chronic symmetrical synovitis, which appears to be associated with hereditary syphilis, in any other joints besides the knees. That it should be symmetrical is only what one expects from our knowledge of the similar manifestations of the disease at this period of life.—*Lancet*, Feb. 27, 1886, p. 391.

92.—THREE CASES OF SLOUGHING ULCER OF THE PENIS.

By FREDK. W. LOWNDES, Surgeon to Liverpool Lock Hospital.

Case 1.—James P., aged 23, a coach-smith, consulted me on Oct. 22nd last for phimosis and ulcers. The inguinal glands on the left side were indurated. He first noticed the fact that he was sore a week after sexual intercourse, and he had been suffering for three weeks before he came to me, having been under the care of a chemist. Hearing this, I examined him very carefully, and as the prepuce could not be retracted, I syringed it out repeatedly with warm water. There was no offensive odour, nor any evidence of slough. I ordered him to inject black wash under the prepuce several times a day, and to take a pill containing two grains each of

grey powder and Dover's powder night and morning. Late in the evening of the 24th I was sent for to see him at his residence in consequence of hemorrhage. On arrival, I found a most offensive discharge coming from under the prepuce mixed with blood. I at once slit the latter up, and found that a considerable portion of the glans had sloughed away. The patient stated that the discharge began to be offensive in the evening of the 22nd, and that the bleeding had been going on all the afternoon. I stopped the pills and gave him a mixture containing carbonate of ammonia and laudanum, to be taken every few hours. There was no further hemorrhage after the glans was fully exposed, and the parts were dressed with lead and opium lotion. The next day he was much better, and the slough had separated. I therefore had the parts well dusted over with iodoform powder, which was repeated at short intervals. The patient made a rapid recovery. There was no induration or any other indication of syphilis, and the parts were perfectly healed in a few weeks.

Case 2.—John D., aged 18, a tramcar guard, was admitted into the Lock Hospital on Nov. 9th with phimosis and ulcers. He stated that he began to feel sore four days after sexual intercourse, and that he had been suffering for one month previous to his admission. There had been some hemorrhage latterly, and he had received no proper medical treatment. I saw him on his admission, and, finding a most offensive discharge, at once divided the prepuce. Part of the corona glandis had sloughed away with a portion of the furrow between it and the inner prepuce, leaving so deep a cavity that I feared lest the urethra should become involved. Iodoform, in fine powder, was applied; a mixture containing carbonate of ammonia and laudanum was given thrice daily; and the patient was ordered to keep in bed. He progressed most favourably until 3 a.m. on the morning of the 14th, when severe hemorrhage occurred from the wound. The resident superintendent (Mr. Serjeant) was called up, and, finding him in a very weak state, sent for me. On my arrival I found that the hemorrhage, which had been evidently venous, had ceased, but the patient was in a very exhausted state. Brandy had been administered, and I ordered this to be repeated at short intervals. I cleared away all the clots, cleansed the wound, and plugged it up with lint saturated in a strong solution of perchloride of iron. There being no further hemorrhage, in a few days the iodoform powder was resumed, and the patient completely recovered. There were no manifestations of syphilis, and it was evidently a case of chancroids taking on sloughing action from neglect, and exposure of the patient to cold and wet in consequence of his calling.

Case 3.—Wm. D., aged 38, seaman, was admitted into the hospital on Dec. 7th with a sloughing ulcer of the furrow, corona glandis, and part of the glans. It was superficial, was of short

duration, and separated in three days, leaving a healthy surface. The treatment was the same as in the previous cases, except that strong opium lotion was used at first, followed by iodoform ointment. There was no hemorrhage whatever.

Cases of sloughing ulcer are much less frequent than they were twenty years ago; hence the appearance of these three cases within so short a period seems to me to deserve notice. My connexion with the hospital as surgeon extends to ten years, and the comparative rarity of this form of sore, with its much greater frequency twenty-five years ago, when I attended as a student, is very striking. During a period of eighteen months I can remember three cases where the whole of the penis was lost, in addition to many others where there was considerable mutilation. My colleague, Dr. Bernard, who saw all the above cases, informs me that during his period of office, now nearly four years, he has had about four cases, two of which were complicated with hemorrhage. We both rely upon opium, administered internally, as a most valuable remedy; and we also employ iodoform, partly as a very useful application in promoting the healing process, partly as a most powerful deodoriser to the horrible effluvium which generally arises from sloughing ulcers of any kind, wherever situated. A very convenient mode of application is by keeping it finely powdered in a box with a lid perforated like a pepper-box (though not quite so finely), and with one or two Tonquin beans, which render it more pleasant, but no less effective.—*Lancet*, Feb. 6, p. 248.

AFFECTIONS OF THE EYE AND EAR.

93.—ON THE CAUSES OF ATROPHY OF THE OPTIC NERVE.

By ARTHUR H. BENSON, F.R.C.S.I., Ophthalmic Surgeon to City of Dublin Hospital; Asst.-Surgeon to St. Mark's Hospital.

In discussing atrophy of the optic nerve, it must be understood that the term, as used, is synonymous with atrophy of the disc; for, from a clinical point of view, the disc is our guide, being the only part of the nerve visible, or capable of accurate investigation; and we are the more justified in adopting this nomenclature in view of the fact, that atrophy of the disc is always associated with atrophy of the nerve-trunk; and, conversely, atrophy of the nerve-trunk is probably always, if sufficient time be allowed, associated with atrophic changes in the disc. By atrophy we mean to include all those trophic changes, whether primary in the nerve or consecutive to some other condition, whether the result of acute inflammation or of slow sclerosis, which, sooner or later, alters the appearance of the disc from its normal pink colour to white or bluish grey, with more or less marked change in the blood-vessels of the disc and retina.

Post-mortem observations have shown that atrophy of the disc is not limited to the portion of the nerve that is visible with the ophthalmoscope, but always extends to the corresponding nerve-trunk, and often to the optic tract; that the change in the nerve varies greatly, in some cases rendering the trunk of the nerve considerably smaller than normal, and imparting to it a greyish translucent or gelatinous look, by reason of a "wasting of all the structures of the nerve-fibres and connective elements, with, especially in recent cases, products of degeneration of the nerve-fibres. The position of the latter may, at first, be masked by rows of fatty particles.

"In other cases the nerve may be little diminished in size, but may present, under the microscope, a great increase in the interstitial connective tissue, fibres, and cells, with disappearance of the nerve-tubules. Commonly, the change is greater in the circumferential portions of the nerve than in the central. Occasionally the reverse is the case. In atrophy from pressure on the nerve its size is usually greatly reduced, and the increase of connective tissue is very considerable. In primary grey atrophy the nerve-trunk is usually little reduced in size, and is grey and gelatinous in appearance. Microscopically, it presents an increase in the connective tissue trabeculæ, and an atrophy of the nerve-fibres; their medullary-sheath first disappears, and afterwards the axis-cylinder. It is said that the nerve-fibres may be reduced to fine fibrous threads. Products of myeline degeneration may be found in the earlier stages.

"Sometimes the change is peculiar; there develops round the vessels a peculiar gelatinous-looking tissue, containing a few nuclei and indistinct concentric fibrillation. The normal arrangement of the trabeculæ disappears, and a section of the nerve shows islets and tracts of this tissue, in the centre of each of which a vessel can be traced. Between them lie the fasciculi of degenerated nerve-fibres, with little increase in their interstitial tissue. The same histological condition may be present in the grey atrophy of locomotor ataxy."

The description which I have just given is from Dr. Gowers's admirable work on Medical Ophthalmoscopy, and corresponds in many important particulars with the changes described by Cornil and Ranvier as occurring in the peripheral ends of divided nerves.

What, then, are the causes which produce such profound changes in the nerve and in the appearance of the disc? and what are the conditions under which these causes operate? These are the questions we have here to consider. To draw up a simple yet comprehensive etiological table for atrophy of the optic nerves is difficult; hence it happens that each author has tabulated the causes differently, in his endeavour to attain further completeness. There are, however, some large all-embracing divisions which are, for convenience, adopted. "Primary" and "secondary" are terms that are in a certain sense etiological, applied to optic nerve atrophy.

“*Primary*” is applied to that form of atrophy which frequently comes on without known cause, and apparently without implication of any other structure. It may be that a neuropathic disposition had been inherited, as in cases first, I believe, described by Leber, where several members of the same family were affected. To this division also belong those forms of atrophy of the optic nerve frequently met with in connection with tabes dorsalis, sometimes met with in disseminated sclerosis, more rarely in general paralysis of the insane, and still more rarely in lateral and insular sclerosis.

It is a fact worth notice, that atrophy of the optic nerve is probably never associated with progressive muscular atrophy; the explanation accepted by Gowers being that, this disease being one of motor nerves, the nerves of special sense are less likely to be implicated. About 75 per cent. of all cases of atrophy of the optic nerves occur in men.

Under “*secondary*” are embraced all those cases resulting from disease or injury of the optic nerves or centres, with or without the occurrence of papillitis.

Another classification is based upon the *position* in which the cause acts.

I. *Causes acting within the globe (intra-ocular)*: 1, specific retinitis, retinitis pigmentosa, choroido-retinitis or detached retina; or (as at rare intervals occurs), 2, from the effects of bright light on the retina; 3, the senile atrophy of hypermetropia probably belongs to this division, since it is accompanied by other changes within the globe.

II. *Causes acting within the orbit (intra-orbital)*: 1, orbital tumour; 2, inflammations, as periostitis, cellulitis, abscess, caries, or hemorrhage; 3, congenital deformities and hyperostoses, narrowing the optic foramen; 4, injuries from direct violence, concussion, splinters of bone pressing on the nerves, penetrating wounds of the orbit, gunshot injuries, &c.

III. *Causes acting within the cranium (intra-cranial)*: 1, tumours of various sorts; 2, hydrocephalus; 3, dropsy of the third ventricle; 4, basal meningitis and meningeal hemorrhages; 5, thrombosis of the cavernous sinus.

IV. *Causes acting within the general system from a morbid condition of the blood (systemic)*: 1, nervous exhaustion, as from venery in excess, or masturbation; 2, catamenial irregularities, especially suppression; 3, sympathetic excitation and reflex trophic disorders, and other remote conditions; 4, exposure to wet and cold, with suppression of perspiration; 5, hemorrhage from internal organs, as the bowels or uterus; 6, acute diseases of various kinds, as typhus, measles, scarlatina, puerperal fever, pneumonia, &c.; 7, the peculiar disease, myxœdema; 8, the overaction of various drugs, as tobacco, alcohol, quinine, lead, &c.; also syphilis, diabetes, and the various forms of Bright’s disease.

There is yet another classification based upon the *nature* of the cause; whether it is the result of—

- I. Papillitis, due to any cause, as cerebral tumour, meningitis, &c.
- II. Pressure on the trunk of the nerve from: 1, tumour in the course of the nerve; 2, hemorrhage into the sheath; 3, hyperostosis of the optic foramen; 4, splinter of bone from fracture of the skull; 5, inflammatory exudation, as from erysipelas; 6, dilated vessels or aneurism; 7, dilated third ventricle pressing on the chiasma; 8, hydrocephalus, &c.
- III. Injuries from external violence: as 1, concussion of the trunk of the nerve as it passes through the optic foramen; 2, gunshot injuries; 3, penetrating wounds of the orbit.
- IV. Thrombosis and embolism of central retinal vessels.
- V. Diseases of structures within the eye, as enumerated above.
- VI. Systemic causes.
- VII. Atrophy associated with spinal disease.
- VIII. Hereditary atrophy.
- IX. Atrophy from unknown causes, without any symptoms other than loss of sight.

From such a variety of causes, then, may atrophy of the optic nerves arise, that it would be impossible to discuss each, even briefly.

The influence of tobacco in producing amblyopia and partial atrophy of the disc has been, at least as regards its clinical aspect fully discussed by Mr. Hutchinson in the *Med. and Chir. Trans.* 1867, and in many subsequent papers. The question of the influence of that many-headed hydra, syphilis, in producing atrophy of the optic nerve, Mr. Hutchinson has already discussed in the *Royal Ophthalmic Hosp. Reports*, vol. ix., and elsewhere, but I cannot think that it has been exhausted. According to the author I have just named, in atrophy due to cerebral syphilis gummata are nearly always the exciting cause. Papillitis may be produced by meningeal gummata. Syphilitic disease of the arteries may produce hemorrhage or thrombosis (the latter only in the acquired disease). Syphilitic disease of the bone may produce atrophy, as also syphilitic degenerative changes in the nerve-centres. Hutchinson also suspects that syphilis can produce a travelling form of primary neuritis. It is especially with reference to this latter point that evidence seems to be needed. Syphilis is so common, and such a very convenient resource when there is doubt about a diagnosis, that one is, perhaps, inclined to accredit it with the causation of many conditions of which it is innocent. It would be well, therefore, to have, as far as possible, the diagnostic points brought out clearly. Many cases of apparently simple atrophy come to the hospitals in which a history of syphilis can be obtained, but where there seems to be no means whatever of making certain that the syphilis is the cause, no other so obvious cause being present, it is accepted.

In speaking of injury to the optic nerve as a cause of atrophy, I may mention two somewhat rare cases which came under my care some time ago in St. Mark's Ophthalmic Hospital, and the notes of which I have already placed on record. The first was that of a boy, aged 10, who, in play with another boy, was stabbed under the eye with a broken fencing foil. The blunt end of square steel penetrated the skin and entered the orbit. There was very slight proptosis; vision was destroyed immediately, but ophthalmoscopically the retina was normal, and its circulation perfect. Atrophy supervened in a few weeks, and became total. There was never any inflammation within the globe. The point of the foil, no doubt, pinched the nerve so tightly against the optic foramen, that, though the retinal circulation was not disturbed, atrophy followed.

The second case was that of a servant girl, who, while sitting in the kitchen, was shot by a fowling-piece which accidentally went off while being cleaned. The right eye, that next the gun, was instantly blinded, but with the left eye she saw the man take up the gun and place it in the corner; and, a second or two afterwards, that eye also became blind, and in a short time developed complete atrophy. Through the right eye one grain of shot passed, for the sclerotic was punctured; but there was absolutely no sign whatever of injury to the left eye, except atrophy. Here, no doubt, the grain of shot passed through the bony septum, and wounded the left optic nerve, probably producing a hemorrhage into its sheath, or wounding the central vessels. It is remarkable that she retained the sight for so many seconds after the injury, and then lost it for ever.

With reference to tobacco amblyopia; the most diagnostic point is the presence of a central negative scotoma, and usually a sector-shaped atrophy of the disc at the outer side is found in old cases. Where is the primary lesion in such cases? And what determines the part of the nerve to be most affected? Is the absence of a central scotoma a symptom of any etiological value?

How far does atrophy of the optic nerve depend on vaso-motor changes, as from sympathetic irritation, etc.? And how far do affections akin to neuralgia influence this nerve?

In many cases of atrophy, the degree of blindness will vary in a most remarkable way from day to day, and even from hour to hour. What is the explanation of this temporary loss and temporary restoration of vision in such cases? And what is the clinical value of the symptom?

What explanation can be offered of the fact that, not unfrequently, there is a history of a sudden failure of sight in an eye affected with atrophy that must have been of much longer duration than the blindness? From this, of course, I exclude those cases where the eye may have been blind without the patient's knowledge.

Very considerable photophobia is at times associated with complete atrophy of the disc and only bare perception of light. What is the explanation and clinical value of this symptom?

How far can atrophy of the disc be recovered from, objectively and subjectively? It must be remembered that the degree of paleness of the disc is no certain indication of the vision in the eye; marked pallor, not due to the general anæmia, being often associated with excellent vision. Simple pallor due to anæmia may, of course, be entirely recovered from, and must not be confounded with atrophy.—*British Medical Journal*, Oct. 10, 1885, p. 685.

94.—ON THE SURGICAL AND ÆSTHETIC ADVANTAGES OF THE ARTIFICIAL VITREOUS BODY.

By P. H. MILES, M.D., Surgeon to the Manchester Eye Hospital.

The introduction of any surgical innovation is fraught with extreme difficulty, more especially when a new departure is indicated which is bolder in conception than has hitherto obtained, and requires for its successful carrying out strict personal supervision and attention to minute details. The disease of the eye which has specially interested surgeons, and been the subject of what we may term more "speculative ophthalmology" than any other, is known to pathologists as "sympathetic ophthalmitis." It is not my province here to enter fully into the views held by equally competent observers; at the same time, I cannot explain the reasons for the operation indicated above, without touching upon the one that led me to adopt it.

Sympathetic ophthalmia, or disease of a sound eye caused by injury to its fellow, was brought to the notice of the profession by Mackenzie of Glasgow (*Diseases of the Eye*, 1840). He referred to it as well-known to his colleagues and himself, and, as the name implies, attributed it to nerve-sympathy, or, in modern terms, a "reflex neurosis." This theory held general acceptance until a very late period; and even now there are many believers in the sympathetic origin of the disease. Be that as it may, a school has arisen which refers the disease to "bacteria," having its first point of localisation in the uveal tissue, there producing a specific uveitis with germs, "bacterioid bodies," capable of self-propulsion along the perineural lymph-spaces of the first affected eye, across the chiasma, and down the lymph-spaces of the sound eye, reproducing a similar affection, often with disastrous results. Holding this view, I designed, for the prevention of sympathetic disease, or, as we now term it, "secondary septic ophthalmitis," the operation of "evisceration of the globe," on the lines hereinafter laid down, to be associated in suitable cases with the use of the "artificial vitreous body."

It is right here to state that the operation of "evisceration" has

been occasionally practised by surgeons as an emergency-treatment, but the perfecting thereof, and the rules for its safe performance, were placed upon a secure basis by Dr. Gräfe, of Halle, and myself during the year 1884, working independently of each other. To our illustrious countryman, Sir Joseph Lister, we are indebted for the antiseptic treatment which alone makes this operation feasible. Perfect faith in the bacterial origin of this affection led me to the steps hereinafter named; for it was not enough to eviscerate the intra-ocular contents, and leave only a small button of sclera on which to plant an artificial eye (immeasurably superior as it is to the operation of enucleation); and, following out the logical sequence, that total exemption from the dangers of sympathetic disease being assured by early removal of all the uvea, the introduction of a permanent hollow glass sphere within the denuded sclera could produce no ill effects, the result has fully realised the most sanguine expectations. To attain this end, the following steps, carried out with a scrupulous attention to detail, are necessary. Any eye may be eviscerated, except such as are infected with tubercle, glioma, sarcoma, or any other known malignant growth. Small stumps, when painful, can be opened, cleansed, bone or foreign bodies removed, and the pain and uneasiness disappear, leaving a smaller stump, but safe from danger to the sound eye, except in those instances where bacterioid bodies have travelled beyond the globe. Even then it is a fair assumption that no more harm could possibly accrue than if the stump was enucleated.

The instruments necessary for the due performance of the operations are: 1, a hand-spray; 2, a siphon-tube of india-rubber to flood the eye after or during operation; 3, an ample supply of solution of corrosive sublimate (1 to 1,000); 4, an eye-speculum; 5, fixing and dressing forceps, two pairs; 6, a Gräfe's knife; 7, a spoon to evacuate contents (Bunge, of Halle, has devised an instrument, but any scoop answers equally well); 8, needles threaded with chromicised catgut (fine size); 9, artificial vitreous bodies in assorted sizes; 10, dressings, namely, iodoform, wood-wool pads in Lister's gauze, oiled silk, glycerine, boracic or sublimated bandages.

The operation is divided into two parts. The first part, complete in itself, is evisceration. It is conducted as follows.

1. Anæsthetise the patient.
2. Use the hand-spray, and thoroughly cleanse and disinfect the appendages with 1 to 1,000 solution of corrosive sublimate.
3. Transfix and remove the front of the eye with a Gräfe's knife at the corneo-scleral margin, cutting round the conjunctiva first.
4. Empty the contents of the globe in any way that is convenient, taking special care to remove the ciliary body and choroid, leaving a clean white sclera.

5. With a thin india-rubber tube (Inst. 2), used siphonwise, run the sublimate solution into the emptied globe; during the performance of the operation, it will help to arrest bleeding.

6. Select the needles, slightly curved, for sewing up, and threaded with gut.

And here, if we please, we may leave the patient, secure in the knowledge that sympathetic disease will not attack the other eye, except under most exceptional circumstances, and that he will possess a movable, though very small, stump on which to adjust an artificial eye; but where a perfect æsthetic result is sought for, and especially in children, for reasons hereafter stated, we advance another stage, and, before sewing up the sclera,

7. Take the glass sphere best suited to the case, slit the sclera vertically, until the sphere will with difficulty enter the cavity. This difficulty only refers to introducing the globe; when it is in, the sclera should unite easily without any tension, and leave no awkward angles; therefore, the largest sphere fulfilling these conditions is the best; finally, sew up carefully with strong chromicised catgut, taking care to get the scleral edges into apposition. Five stitches are generally sufficient. Lastly, draw conjunctiva over, and unite at right angle to the scleral wound.

8. Spread a thick layer of finely powdered iodoform over the whole conjunctiva, and dress with salicylic-wool in a double layer of Lister's gauze.

9. Keep the patient in bed for three days, and dress with hand spray, till all risk of septic trouble has passed over.

Should you succeed in keeping the wound aseptic, the reaction is comparatively trivial; if suppuration ensue, the pain and distress may be severe, the orbit becoming infiltrated, and the sclera may slough away. I cannot lay too much stress upon perfect asepticity. The operation should never be performed without full precautions for its attainment; in any case, it is well to warn the patient that he may have pain in and around the orbit for a week.

Union is in most cases rapid. A firm round globe results, retaining all the associated movements *ad maximum*, and capable of carrying an artificial eye which, when carefully centred and moulded, absolutely defies detection. The stump is insensitive to manipulation, so that it seems impossible that irritation can be set up.

In selecting eyes for an artificial vitreous body, it is obvious that shrunken globes must be passed over, as also those in which the conjunctiva is in a sloughy condition, as after burns, or destruction of the eye from gonorrhœal ophthalmia; but, when the eye is of fair size, and the conjunctiva healthy, however diseased the contents of the globe, and especially in extensive fresh wounds, where

primary enucleation is the alternative, the artificial vitreous body can be advantageously used. Below is a table comparing the operation with that of enucleation.

Enucleation.

1. Complete removal of globe and its contents.

2. Displacement of all muscular relations, and arrest of movement.

3. Cicatricial bands are a frequent accompaniment of enucleation. The introduction of an artificial eye is thus rendered very difficult, and secondary operations necessitated.

4. Contractions, specially towards the orbital apex, occur, making new eyes a necessity, and preventing all chance of a good fit. So, also, the sinking of the glass eye and distortion of the lids is constant.

5. The lower sulcus of the conjunctiva being constantly pressed upon by the lower edge of the glass eye—which, indeed, rests upon it—rough granulation, ulcerations, and thickening occur, which necessitate non-wearing of the eye for lengthened periods, and may induce sympathetic irritation of the sound eye.

6. The removal of an eye is a terrible operation to the mind of the patient, more especially as ill-fitting glass eyes are so common that there is no solace to be gained from their contemplation, many promising lives having been wrecked through the shrinking from publicity caused by the self-consciousness of an ill-fitting glass eye.

7. Arrested development of the orbit in young children.

Evisceration and Artificial Vitreous.

1. Retention of the framework of the eye.

2. Perfect harmony of muscular movements retained.

3. No bands ever occur after evisceration, unless through burns or other destructive agencies of a similar nature.

4. A definite size of globe being introduced, no change ever occurs after the parts have quieted down, in from six weeks to two months; nor can there be either sinking of eye or distortion of lids.

5. A glance at Fig. 2 will explain that the grave mischance, mentioned in Enucleation 5, cannot exist with the artificial vitreous body, as the concavity of the artificial eye, being kept closely applied to the convex globe by the lids and atmospheric pressure, is lifted up, and rarely touches the inferior sulcus.

6. An artificial eye which defies detection must exercise an important influence over the mental, bodily, and social status of the wearer.

7. Orbital development is successfully encouraged to continue.

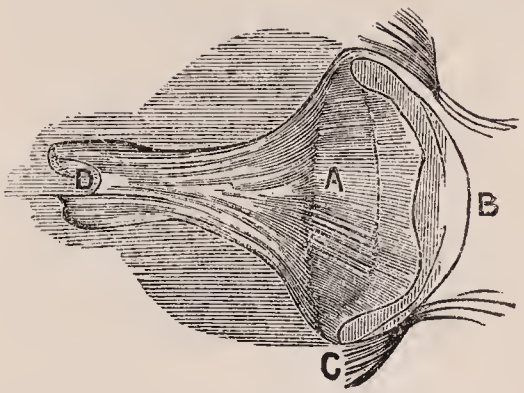


Fig. 1.—After enucleation. A. Cavity of orbit lined with conjunctiva. B. Artificial eye, hung in orbital cavity. C. Lower edge of eye pressing on inferior sulcus; a source of granulation, ulceration, and cicatrices. D. Muscles, nerves, and vessels matted together.

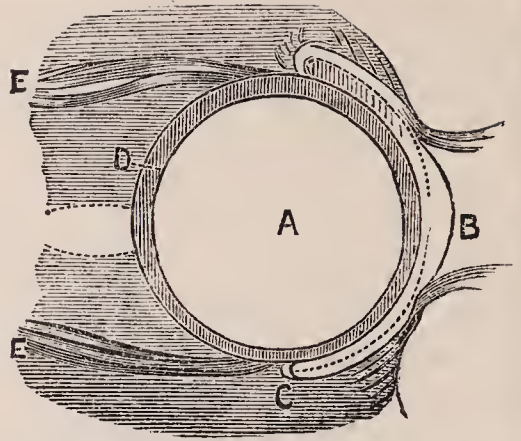
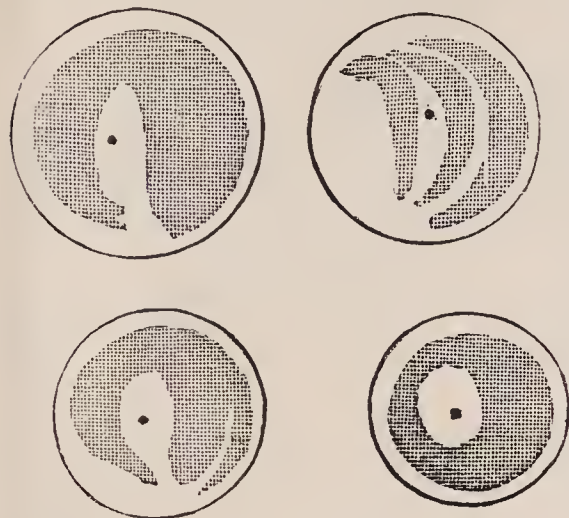


Fig. 2.—After evisceration. Artificial vitreous body *in situ*. A. Artificial vitreous body. B. Artificial eye, applied over globe. C. Inferior sulcus of conjunctiva, showing freedom from pressure of edge of eye. D. Sclera. E E. Muscles *in situ*.

There can be no doubt that, if only a portion of these benefits can be conferred, the operation above described should be unhesitatingly adopted. To weigh against it, we have: 1, an operation requiring care, dexterity, and careful attention to detail; 2, careful dressings, and more personal supervision from the surgeon; 3, a longer convalescence and a longer time before the artificial eye can be used (the artificial eye should not be used for two months); 4, it may be urged that we have no guarantee that the success will be permanent: time will show. The first case shown at the Ophthalmological Society in March, 1885, has used an artificial eye for eleven months; the result, so far, is perfect. A second has used it eight months; I have not seen him since, but know he is well; and others of later date.

Let me again point out that, in young children, enucleation is followed by arrested development of the orbit. This is an interesting physiological fact, the importance of which cosmetically cannot be overrated. It is allowed by most competent observers that the introduction of the artificial vitreous body will encourage the normal growth of the orbit, and assist to maintain symmetry of feature. The advantage of the operation is again manifest when I tell you that it may be undertaken at any age from three months to seventy years, with equal facility and absence of risk. Lastly, I look forward to the placing of the pathology of sympathetic disease upon a basis absolutely incontrovertible through the medium of this operation; for I submit that, should we succeed in preventing secondary inflammatory attacks of the sound eye, we shall have reduced the bacterial origin of sympathetic disease to a demonstration.

Note.—The correct fitting of an artificial eye being a point of the highest importance, it behoves the surgeon to see for himself and unhesitatingly reject such as do not fit accurately, and the movements of, which are not free in every direction; otherwise the irritation caused by the pressure of an opposing edge will destroy the benefit likely to accrue to the patient from the original operation.



Artificial vitreous body in useful sizes. Messrs. Armstrong, of Deansgate, Manchester, have interested themselves much in this matter, and I have suggested to them to keep a supply of assorted sizes of the artificial vitreous body. (See Figs.)—*British Medical Journal*, Dec. 19, p. 1153.

95.—EXAMINATION OF CORNEA AND LENS BY OPHTHALMOSCOPE, HAVING BEHIND IT A STRONG CONVEX LENS.

By G. HARTRIDGE, F.R.C.S., Asst.-Surg. Royal Ophth. Hospital.

This simple plan is not new, having been used by some ophthalmologists for the past year or two; but so far as I know, no account of it has appeared in any paper, nor has it been referred to in any of the books on the eye which have been recently published; and I think one of the objects of these annual meetings is that the members may have an opportunity of exchanging ideas, and bringing forward any subject, however slight, which may have escaped notice. I am aware that several ophthalmologists frequently and systematically employ this method, where an accurate examination of the cornea or lens is necessary; but there are many, I am sure, who have never used it.

The plan consists simply in using the direct ophthalmoscope with a + 20 convex lens behind it when examining the cornea, and a somewhat weaker glass (+ 16) for the crystalline lens. Spots, opacities, vessels, or the remains of vessels, show up as dark objects on a red background. A few trials are necessary to find out the exact distance the observer should take up, so as to focus clearly the part under observation.

1. In keratitis punctata, the spots on Descemet's membrane can be plainly seen as black spots on the background of the illuminated fundus, and can thus be seen with the high magnifying glass in many cases where they might otherwise be easily overlooked when the cornea is examined only by the oblique illumination.

2. In opacities of the cornea, especially those left after intersti-

tial keratitis, and in some cases even where the cornea seems quite clear, numerous lines may be seen crossing the cornea in all directions. These lines are the remains of vessels which formed the salmon-patch—they show up as dark lines on a red background. It is probable that these lines never completely disappear.

3. Slight opacities of the crystalline lens, or spots of uvea on it, can be well examined by this plan; also the capsule after a cataract-operation, when considering the necessity of a needle-operation. This method of examination cannot be employed when the lens is so opaque that we are unable to get the ordinary fundus-reflex; this is the one essential condition for the carrying out of this plan.—*British Med. Journal*, Oct. 10, 1885, p. 689.

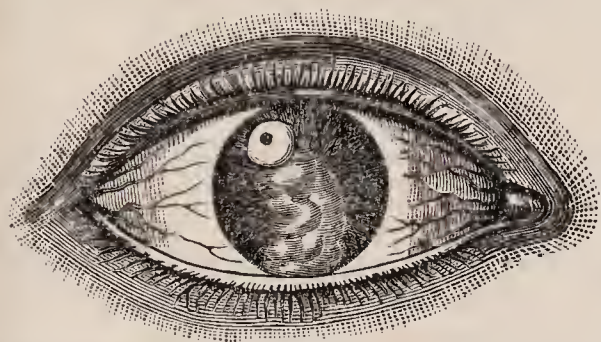
96.—CASE OF CYSTICERCUS OF ANTERIOR CHAMBER.

By RICHARD WILLIAMS, Surgeon to Liverpool Eye Infirmary.

F.B., a collier, aged twenty-two, was admitted into the Wigan Infirmary, on Sept. 12th, 1885, and was first seen by the senior house-surgeon, Dr. J. Buchanan, to whom I am indebted for the notes relating to the earlier period of the case, and who found him suffering from iritis of the right eye. Three days later this diagnosis was confirmed by myself, and the case was treated with atropine in the ordinary way. The patient said that three or four weeks before admission his first symptom had been pain in the eye-brow, followed two days later by "inflammation" and failure of sight. Some days the pain was so severe that he had to take to bed. Previous to the attack his vision had always been good. There was no specific history.

On admission the iris was discoloured and the pupil apparently fixed, the officinal solution of atropine producing no dilatation. On Sept. 21st, a whitish mass was noticed in the lower part of the anterior chamber, and immediately above, rather behind and to the inner side of this mass, a small round vesicle about the size of a small bead was observed. It was transparent and contained a whitish nucleus. Two days later the vesicle had somewhat changed its position, and was seen to have a tremulous motion. On Sept. 28th, it had moved upwards, and the exudation covered the pupil, so that the patient's vision amounted to faint perception of light. The following day the patient was again seen by me after my return from a fortnight's holiday, and the eye presented the appearance shown in Fig. 1. There was considerable perikeratic injection and lacrymation. The pupil was hidden behind a mass of whitish substance, which might easily have been mistaken for lens matter after a needling operation. Above this heap, at the outer and upper corner of the anterior chamber, resting on the iris, was seen a small, round transparent body, with a regular outline and a yellowish speck in the centre. On carefully watching

this body, its walls were seen to have an active wavy movement every now and again, and the diagnosis of cysticercus was now made. It was also noticed that during the more active movements a whitish cloud passed apparently through the vesicle, so as temporarily to hide the nucleus in the centre. On Sept.



30th, some of my colleagues at the Eye and Ear Infirmary had an opportunity of examining the patient, and all agreed in the diagnosis. The cyst had now dropped to the lower and outer angle of the anterior chamber, so that altogether it had made an excursion of nearly the whole of its circumference. Two days later (Oct. 2nd), the movements of the entozoon were much less marked, but still quite visible with the aid of a magnifying lens, and the exudation had considerably diminished. The general symptoms were, however, on the increase, and the pupil was undilated.

The patient was now placed on the operating table, and, some



cocaine having been instilled, a linear incision was made with a Gräfe's knife in the lower part of the cornea, just below the cysticercus. The incision was made rather quickly, in the hope that the vesicle would escape with the aqueous. My expectations were more than realised, for it shot out with considerable force and was found on the pillow near the patient's head. The iris prolapsed into the

wound and could not be returned. I therefore cut off a small portion, and the eye was dressed in the usual way. The eye made an excellent recovery, and now (Nov. 20th) $V = \frac{6}{8}$, there being only a slight difference in clearness between this and the other eye. The small gap in the iris and one or two small pigmentary deposits on the lens are the only remaining ill effects. The cyst, on being picked up, collapsed, but the cyst wall was put under the microscope by Mr. Barnard, the junior house-surgeon,

and presented two groups of hooklets, of twelve each, one of which is shown in Fig 2. The anterior chamber, as shown in Fig, 1, was the seat of a considerable quantity of a peculiar-looking exudation, which, I believe, was not at all inflammatory, but was probably a coagulable liquid thrown out of the vesicle itself. Two things lend probability to this supposition. First, the shape and position of the exudation—immediately underneath the vesicle; and, secondly, it diminished in quantity with the diminished activity of the animalcule, although the general symptoms of inflammation were rather on the increase.

The extreme rarity in this country and in France of cases of entozoa of the organ of vision imparts to them quite an exceptional interest, and every practitioner is under an obligation to record whatever experience he may possess of so interesting and destructive a disease. De Wecker says (*Traité Complet*) that no case of cysticercus of the anterior chamber has ever been recorded in France, and in 100,000 patients he only met with two cases of the animalcule in the vitreous. On the other hand, the disease is comparatively common in Germany, for Alf. Gräfe detected the entozoon eighty times in 80,000 patients. The reason given for this great difference in frequency is the custom of eating raw meat in the latter country. In the British islands, Mackenzie, Windsor, and Teale have each reported a case. In the district in which my patient lives, the disease cannot be common, for this is the only case that has come under my observation, nor do I know of anything in the patient's habits or circumstances to account for the appearance of the disease in him.—*Lancet*, Jan. 16, p. 102.

97.—ON SYPHILIS AS A FACTOR IN EAR DISEASE.

By EDWARD WOAKES, M.D., Aural Surgeon to London Hospital.

In asking your attention to the varied aspects under which syphilis occurs, either as the originator or modifier of ear-disease, I propose to consider it in the first place as a cause of persistent otorrhœa. It may, I think, be taken for granted that, whenever a discharge from the middle ear continues in spite of appropriate treatment, it does so because of the existence of a limited, and in most cases superficial, spot of caries. I have elsewhere shown the method required for detecting this lesion (*Annales des Maladies de l'Oreille*), and indicated that dilute sulphurous acid is capable of eradicating it. When, however, such a limited area of exposed and carious bone is due to the operation of the syphilitic virus, certain difficulties are introduced as regards both diagnosis and treatment. In the first place, a syphilitic caries is not to be distinguished, or at least not readily distinguished, by its appearance, from a similiar condition arising idiopathically. Moreover, it does not often yield to the sulphurous acid treatment. But it fre-

quently has this distinctive feature : the caries is symmetrical ; that is, there is a corresponding lesion in both ears.

The following brief outline of a case in point will make more clear the bearing of these remarks. A young man, a patient at my ear-clinic, presented, in the left ear, the appearance of a rough dry spot, just above and in front of Shrapnell's membrane, in the roof of the external auditory canal. It was about the size of the head of a shawl-pin. This spot, when explored with a fine probe, yielded the characteristic grating sensation of exposed bone. When first observed, the rough surface was quite dry, the soft tissues being marked off from it by a sharply defined circular margin. In the right ear, in a spot corresponding to that just described, there was seen a circular greysloughy-looking space. The probe passed through this, showing it to be a film of pus, beneath which exposed bone was detected. The carious process, which was quiescent in the left ear at the date in question, was seen actively progressing in the right. When examined some months later, both spots had become perforations, through which the probe passed into the tympanic cavity of each side respectively. There was a history of chancre seven years previously, and some just healed cicatrices of tertiary ulceration were present on the left cheek—facts which left no doubt as to the syphilitic nature of his ear-lesions.

But the existence of a syphilitic element in a given case is not often testified by evidence so clear as in that just detailed, and yet its diagnosis is equally important, because, apart from specific treatment, the ear-lesion will make no progress towards recovery. The following hint, as an aid to this end, appears worthy of record, the more so as it occurred quite undesignedly, under the following circumstances. I was treating, at the London Hospital, a married woman, about 35 years old, for very obstinate suppuration of the left middle ear. She had also marked indications of labyrinthine implication, severe vertigo, tinnitus, distressing headache, pains in the neck, &c. The patient was well nourished, had never been pregnant, and, except that her husband was a chronic invalid, there was no circumstance to point to a specific taint in her constitution.

She was subjected to treatment such as ordinarily succeeds in simple non-enthetic cases, and, *inter alia*, leeches were several times applied in front and behind the pinna, always with temporary relief to the vertigo. On one occasion, I noticed that the scars of the leech-bites had assumed a brownish tint, which in a short period deepened into distinctly copper-coloured stains, so that they came to resemble small moles. This circumstance suggested the possibility of the case having a syphilitic basis, and explained the failure, hitherto, to accomplish a cure. In the meantime, a small granulation appeared behind the perforation in the posterior segment of the drum-head. Exploration with the probe indicated rough and

exposed bone in the floor of the tympanum. Specific treatment was adopted, and pushed promptly and fully. The symptoms referable to the labyrinth, which had hitherto been most intractable, rapidly disappeared; a hint which will not be without value in dealing with severe cases of vertigo. As soon as the patient's gums became slightly affected, the bronzing of the leech-bites disappeared, leaving the usual triangular depressions, with a perfectly white base.

Dilute sulphurous acid, 1 in 8, did not remove either the granulations or the caries. She was therefore directed to insufflate iodoform, with the use of which the lesion disappeared, leaving only a clean perforation, behind which the healthy mucous lining of the middle ear was clearly revealed.

The value of the foregoing observation was subsequently impressed upon my mind on being shown by a medical friend an infant, aged about 9 months, who was the subject of obstinate diarrhoea, associated with supposed mesenteric disease, though otherwise exceedingly well nourished. The child was undressed for inspection, when my attention was attracted to the recent vaccination-scars. These exhibited the peculiar bronze-colour noted in the cicatrices of the leech-bites in the patient last mentioned. There was nothing else about the child to suggest syphilis, unless the abdominal ailment were to be so considered. All doubt on the subject was dispelled when I learned that the father, so recently as two years prior to this occasion, had been the subject of a primary sore.

The practical outcome of these experiences is to suggest a means of confirming our diagnosis in a suspected case of syphilitic ear, in many of which the lesion presents no characteristic feature to guide to a correct conclusion on this point. The application of a few leeches can seldom do harm, while recourse to them is often indicated for the relief of symptoms. Should the cicatrices afford the required information, a decisiveness will be thereby imparted to the treatment, which will be a gain both to patient and surgeon; while the silent nature of the testimony thus afforded will save painful and almost useless interrogatories.—*British Medical Journal*, Oct. 3, 1885, p. 642.

98.—ON REMOVAL OF OSSEOUS TUMOURS FROM THE EAR. By GEO. P. FIELD, M.R.C.S., Aural Surgeon to St. Mary's Hospital.

The walls of the osseous auditory meatus are sometimes the seat of a general bony thickening. This species of exostosis is less rare in women than in men. By far the most frequent cases of aural exostosis are those in which the growth proceeds from a defined base or a pedicle.

The commonest form of aural exostosis is usually pedunculate,

and of rapid development, and originates in the active inflammatory processes accompanying chronic suppuration of the middle ear, which, by causing periostitis, lead to the formation of new bony tissue. In some instances, the exostosis is seated on the base of a polypus, and in others the growth itself gives rise to polypi. Boils or instrumental interference with the ear would appear to be assignable causes of exostosis in certain cases where suppuration through the membrana tympani cannot be discovered ever to have taken place. There is no satisfactory evidence that aural exostoses of any kind are primarily due to a scrofulous, rheumatic, or gouty diathesis, or to syphilis, though by some authors this has been, with much confidence, surmised. The commoner and rapidly growing exostoses, being, as microscopic examination evidences, simply spongy osteomata, and similar in structure to newly formed bone, are of much less density than the typical ivory-like growths, and are, in consequence, more readily amenable to operative treatment.

The majority of the multiple forms of aural exostosis histologically resemble syphilitic nodes of the cranial flat bones, showing Haversian canals, and bearing blood-vessels from the periosteum, with intervening concentrically placed lamellæ and bone-corpuscles; the vascularity is, however, very slight in the oldest and most slowly formed of these exostoses, which thus approach in density the ivory outgrowths.

Ivory aural exostoses, or hyperostoses, are of more frequent occurrence in men than in women. Almost invariably one finds them originating near the orifice of the external meatus, either as a long ridge, or one or more round and broad-based tumours. They are usually bilateral, and grow slowly, so that their existence may be unnoticed until, by occluding the meatus, they cause deafness or some inflammatory action. Their production is not traceable to any evident congenital source, and their possible occurrence in members of one family may point simply to the like operation of similar conditions in different individuals, although hereditary tendencies may certainly have some sway in their causation. It is noteworthy that many of my cases have occurred among inhabitants of the same locality. Thus, I have had four cases from Waterford, three from Ipswich, several from the South of Ireland, and one each from Hull and West Hartlepool.

In the greater number of cases, some slight but long-continued irritation of the meatus, such as may result from daily bathing in salt water, seems to be the determining cause. The evil effect of salt water in these cases I first pointed out some years ago, and I have repeatedly since had evidence of the correctness of my original conclusion. In the crania of the semi-aquatic Hawaiian islanders, they have frequently been remarked. Their more numerous occurrence among males than females may, perhaps, be attributed to the greater exposure of the former to irritative influences of the

meatus. Structurally, ivory aural exostoses are found to consist of extremely dense, and but slightly vascular, osseous tissue, similar in hardness to dentine, and more compact than their direct source, the temporal bone, with lamellæ not disposed concentrically around vessels, but running parallel to the surface.

Treatment.—Where an exostosis is the result of suppurative inflammation, arrest of the discharge is an indispensable first requisite. In the case of multiple ivory exostoses, which have so obstructed one another's growth as to leave a narrow passage for a sound, the occasional removal of cerumen and epithelial *débris* may be all that is required for the preservation of hearing. When the tumour is of soft bone, the use of an *écraseur*, or of a dentist's forceps or elevator, preceded or not by a few minutes' drilling, may suffice. For the treatment of ivory exostosis blocking the meatus, and so preventing the escape of purulent secretions, or causing deafness, drilling with the dental engine is the only operation that can be safely recommended. Excision with saw and chisel has, it is true, been resorted to, but the difficulty and danger of the operation are obvious, and constitute decided objections to its practice.

Successfully to employ the dental engine, the patient must be placed on a couch about four feet from the ground, in order to bring him within reach of the drill; his head, furthermore, must be placed on a pillow, with the side to be operated on well exposed to the light. To protect the internal structures of the ear, in case the drill should slip, it is highly desirable to employ a spoon-like steel guard, made after a pattern, in thin copper, expressly to pass by the side of and behind the exostosis. A set of drills should also be provided, for experience shows that the gradual enlargement of a very small initial opening is the best mode of procedure. At least three assistants ought to be obtained, one to administer an anæsthetic, another to work the treadle of the dental engine, and another to keep the steel guard steadily in position. Without previously removing the skin, one may proceed at once to the perforation of the tumour, avoiding its base, keeping close to the side of the steel guard, and frequently taking out the drill to allow the sponging away of accumulated blood. The following are a series of cases of the removal of ivory aural exostoses by drilling.

[Mr. Field then gives the details of sixteen cases.]

The cases in which operation is unjustifiable are those in which it would be dangerous, because of the growth being not only of extreme density, but situated at a great depth within the meatus. Cases of deeply seated soft exostoses (spongy osteomata) may, on the other hand, be treated instrumentally without risk, as in the instances of removal by forceps above recorded. The confounding of these with the harder growths has doubtless led to the accounts, occasionally to be met with, of the ready removal of ivory exostoses

after a few minutes' drilling. As we have seen, the drill may be quite unnecessary for the softer class of excrescences, whereas experience proves that it alone, used for a considerable length of time, can be of any avail for the penetration of the harder growths.

These cases only go to strengthen conclusions long since arrived at by me:—(1) that aural exostoses must not be considered as at all necessarily the outcome of gout, rheumatism, or syphilis; (2) that their origin can, with strong probability, be attributed, in many, if not in all cases, to some preceding local irritation; (3) that they can be safely and most effectually treated by drilling, when a suitable guard is employed to protect adjacent structures; (4) that their speedy removal is indicated whenever they hinder the elimination of secretions and discharges from the auditory canal, cause pain by pressure, or impair or prevent audition.—*British Med. Journal*, Feb. 20, 27, pp. 338, 387.

99.—ON MÉNIÈRE'S DISEASE OF THE EAR.

By F. W. PIERCE, M.D., Sen. Surg. Manchester Ear Institution.

Giddiness and unsteadiness of gait are symptoms met with in many apparently different diseases, but the frequency of disorders of equilibrium in connection with affections of the ear, and caused by unsuspected aural derangement, does not appear to be sufficiently taken into account by those who do not give special attention to disease of the ear. The unfortunate culprit in this matter is sufficiently detected if the giddiness is laid at the door of that long-suffering organ, the liver; or at another time it is the stomach, suppressed gout, or some indefinite malaise, which will serve as a scapegoat to cloak an unrecognised diagnosis.

Setting aside those diseases of the cerebrum or cerebellum which are accompanied primarily or secondarily by disturbance of equilibrium, I am disposed to regard the ear as the sole offender, and as responsible for a majority of those cases in which more or less giddiness, vertigo, or irregularity of gait are prominent symptoms. There are two kinds of giddiness met with in these cases.

1. That in which the patient feels the body impelled in different directions, with a distinct tendency, more or less marked, to fall to the ground.

2. That in which unsteadiness of the body is produced by the sensation to the patient of extraneous objects appearing to move about in certain defined planes and assume abnormal positions.

The latter form of vertigo is rarely, if ever, observed in connection with the giddiness of dyspepsia or other general ailments. Without entering on the still debateable ground as to the physiology of the labyrinth, I accept the view still generally entertained that the semi-circular canals exercise the function of controlling the equilibrium of the body, and in discussing the disease under

consideration adhere to that interpretation of one of the functions of a portion of the internal ear.

In 1861, Dr. Ménière, of Paris, published an account in the *Gazette Médicale* of some cases he had met with in which the symptoms consisted of a sudden attack of giddiness or staggering, causing the patient to fall to the ground, or to feel powerfully drawn to one or other side. Nausea or vomiting, and sometimes complete fainting, were observed, but unconsciousness very rarely ensued. During or immediately after the attack, very marked deafness of one, rarely both, ears was observed, together with loud noises in the affected ear or ears. There was generally extreme pallor of the face, and a cold, clammy perspiration. Dr. Ménière found, upon post-mortem examination of the cases he was able to investigate in that way, that there was apoplexy of, or hemorrhage into, the semicircular canals, and that no lesions of the brain could be detected. These attacks were over in a few seconds, or minutes, but the deafness to both osseous and aërial conduction of sound was usually extreme and permanent. There was often considerable confusion of ideas after the attack, and, in the worst cases, intellectual effort or mental anxiety brought on increased giddiness and noise in the ears. As a rule, the patients had had no previous affection of the ears.

The large majority of the cases of so-called Ménière's disease should be restricted to the term "labyrinthine vertigo," in which some of the symptoms occurring in Ménière's disease are noticed, but with varying degrees of intensity. In true Ménière's disease there is not generally any antecedent ear affection; the attack is sudden, severe, and may never recur, while it is nearly always limited to one ear, although the deafness is extreme and permanent. The tinnitus aurium and the giddiness frequently diminish or cease entirely after a time, and the external and middle ears show no signs of disease. The severe deafness which often follows continued fevers, with absence of middle ear disease, is probably due to serous or hemorrhagic exudation into the labyrinth, and resembles true Ménière's disease in its effects.

In the series of cases to which I consider the term labyrinthine vertigo should be restricted, there is a frequent history of some previous ear trouble—catarrhal attacks, otorrhœa, polypi, perforations of the membrane, or severe tinnitus, with more or less deafness. The attacks are less sudden, but more frequent, than in true Ménière's disease. In both there is no loss of consciousness, but the hearing after labyrinthine vertigo may be unaffected or only slightly injured, or previous deafness may be considerably increased. The giddiness of labyrinthine vertigo is rarely so severe as in Ménière's disease, although more chronic and liable to intermittent exacerbation. The advent of an attack of labyrinthine vertigo is often heralded by slight staggering and nausea for some

days, and may be excited, in those who are liable to it, by remote and apparently unconnected causes, which the patient learns to avoid as far as possible. When repeated attacks of labyrinthine vertigo have produced almost complete auditory nerve paralysis, then the condition of the patient resembles that following a single attack of true Ménière's disease, where the unsteadiness of gait gradually passes off and the attack is never renewed.

It is with reference to the treatment of so-called Ménière's disease that I particularly desire to distinguish between true Ménière's disease and labyrinthine vertigo. As I have before stated, the former affection is marked by a severe degree of deafness, and is almost always incurable; and this is easily understood if, as Knapp says, a primary affection of the labyrinth may be caused by (1) hemorrhage, (2) serous exudation, (3) pus, being present in some or all parts of the internal ear. If there is deafness for certain musical sounds, the affection is not limited to the auditory nerve filaments outside the labyrinth, nor to the semicircular canals and vestibule, but includes the cochlea.

In true Ménière's disease, the treatment should consist, during the attack, of rest in the recumbent posture; restriction of diet; cold applications to the head; and sinapisms to the epigastrium and feet. As the attack is generally short and sudden, the after treatment only is that most worth considering, and here the result is very unsatisfactory. Bromide and iodide of potassium in large doses, with or without strychnia, nux vomica, or gelsemium, have seemed to improve the hearing to a very limited extent, although their influence in lessening the tinnitus and vertigo is often very beneficial. The inunction of iodine liniment, of mercurial ointment, iodoform behind the ear, the use of blisters over the mastoid, seem to have but very slight benefit. The administration of quinine in increasing doses, as recommended by Charcot, has marked effect in removing the unsteadiness of gait; but my experience of its effect upon the tinnitus and upon the slight amount of hearing sometimes left in true Ménière's disease, is not favourable. The difficulty of inducing patients to continue taking large doses of quinine, during the early stages of which the tinnitus is greatly aggravated, and the hearing completely abolished, must not be forgotten. Subcutaneous injection of muriate of pilocarpine, as recommended by Politzer, is still on its trial, and so far without much success. More benefit is to be looked for from the use of the continuous current, together with the administration of strychnia, phosphorus, and similar tonics.—*Medical Chronicle*, Oct. 1885, p. 1.

MIDWIFERY, AND THE DISEASES OF WOMEN, ETC.

100.—ON LACERATION OF THE OS AND CERVIX UTERI, AND EMMETT'S OPERATION.

By GRAILY HEWITT, M.D., F.R.C.P., Professor of Midwifery
in University College, London.

[The clinical lecture, from which the following excerpt is taken, opens with brief narratives of eleven cases in which Dr. Hewitt had performed Trachelorrhaphy. Eight of the cases were completely cured of the laceration (in one case after two operations); while in two, partial union was obtained; and in one an attack of cellulitis prevented a successful result.]

Observation of these cases has suggested the following remarks on the question as to the influence of lacerations of the cervix in giving rise to symptoms, to interference with the comfort and health of patients, in regard to their interference with pregnancy, and in reference to the question as to the predisposition to uterine cancer held by some to exist in cases where such laceration is present.

General discomfort, and incapability of walking and following ordinary avocations, frequently spoken of as “weakness,” constitute the most generally present symptoms in cases of chronic cervical laceration. It may be objected, that these symptoms are indefinite; but, as a matter of fact, they are the symptoms which cause the patient most frequently to seek advice. These feelings on the patient's part are associated with various other symptoms in different cases, and it need hardly be stated that there is nothing pathognomonic about them, for this general misery and incapability may be due to other causes.

Pain was frequently observed in the cases under my notice. It is not always so, but there is frequently a characteristic pain on one or other side near the groin, as if there were a sore place, and more or less persistently present, often extending down the leg on the same side. When this pain is not present, a constant aching discomfort, or increase of discomfort from walking, may be observed. Pains in the situations indicated are not actually pathognomonic of cervical laceration; for they may be due to severe flexion, which is not seldom associated with lacerations. On the whole, it may be stated that severe chronic pain traceable to lacerated cervix constitutes a frequent indication for the operation.

Reflex symptoms are occasionally observed. In one patient, there

was present a most painful abdominal aortic pulsation, together with tenderness of skin at various spots, which became much relieved after the operation. There had been, in the same case, other anomalous nervous symptoms.

Liability to Cellulitis (Parametritis), possibly also to Perimetritis.—There is no doubt of the fact that an inflammatory exudation is liable to occur in immediate proximity to a laceration, probably due to septic absorption. Thus, one of my patients had, to my knowledge, a deep laceration of the left side of the cervix. A little while afterwards she was delivered of a second child, and three days after the labour I was requested to see her, and found her suffering from cellutic effusion of the size of an orange, close to the laceration. Probably the existing laceration had been increased during the labour, and hence the inflammation. I think it probable that many cases of cellulitis *post partum* are connected with laceration, possibly very slight, and in themselves unimportant, but sufficient to give ingress to septic material. This view of the matter I have seen maintained also by others who have written on the subject. In a minor degree, there can be no doubt that local uterine inflammation, short of actual cellulitis, is frequently set up by the physical injuries to which the everted mucous membrane is subjected.

Leucorrhœa or menorrhagia does not necessarily indicate necessity for operation in cases of laceration. There are, however, symptoms frequently present in a severe degree in such cases; and there are undoubtedly cases in which the leucorrhœa or the menorrhagia cannot be satisfactorily dealt with, unless the cervix be repaired.

Of the several *morbid changes at the os uteri*, which appear to be unquestionably due to laceration of the cervix, *eversion of the lining of the cervix* is one of the most important, subjecting the delicate already torn surface to friction and injury in various ways. Hence some of the so-called severe ulcerations. The irritation thus produced leads to further notable effects. The most important of these are swelling of the tissues of the os uteri, and consequent hypertrophy, so that in a severe case the os uteri often presents two large masses, looking like two tumours growing at this situation; or there may be only one, constituting sometimes a long snout-like prolongation, one surface of which is smooth, the other perhaps raw and rough. Profuse losses, leucorrhœal and sometimes menorrhagic, result. It is a fact which I have several times verified, that this hypertrophy disappears when the repair of the laceration is effected, sometimes with extreme rapidity, doubtless indicating that the circulation in the tissues round the os had been impeded owing to the rent. Eversion of the lining of the cervix to any great extent can hardly occur without cervical laceration, and the operation of trachelorrhaphy is most effective in removing

this irritating condition. It may be said, indeed, that it constitutes the only real cure for it. It is true that an alternative treatment, namely, the use of the cautery, may be made effectual in curing the tendency to eversion; but this method must be regarded as inferior to trachelorrhaphy, and there is necessarily a risk of bringing about a cicatricial closing of the os uteri, if the cautery be extensively employed.

Formation of Cysts is another result of laceration with great eversion of the os. These cysts may be found as large as peas, three or four or more in number, on the surface of the original wound, or near the free end of the hypertrophied lip.

Judging from my own experience, *miscarriages* frequently occur in cases of lacerated cervix, and, in some cases, are distinctly connected with it, though in others they seem in part due to a coexisting displacement. Thus, one patient with displacement *plus* severe laceration had had nine miscarriages; another, similarly affected, had had two miscarriages; another, one miscarriage. In two other cases, where laceration alone existed, miscarriage had occurred; and, in one case, the three last labours had taken place at eight months, due, no doubt, to the existence of the laceration. It appears to be the fact that, in certain cases of severely lacerated cervix, the tendency to miscarriage can only be cured by repairing the injured structures.

Association of laceration of the cervix with acute *retroflexion*, or with troublesome *anteflexion*, is not seldom met with. The question arises, What is the connection between the displacement and the laceration? It is reasonable to suppose that, when the laceration is extensive, a displacement of the body of the uterus forwards or backwards will more readily occur. In one of my hospital cases, where retroflexion was present, the condition of the patient was found to be practically irremediable and unrelievable, until the laceration was dealt with. On the other hand, the displacement would, of course, intensify and aggravate the effects of the laceration. In a case recently under my notice, where the position of the uterus had been kept right by a pessary, and the instrument removed for a week to facilitate preparation of the patient for the operation, it was found that the eversion had, at the end of that time, become much more severe, and the lips of the laceration much opened out, as the result of the recurring displacement. In cases where the laceration is slight, and the displacement considerable, an operation might not be necessary; but, when the laceration is extensive, the patient cannot be thoroughly relieved in any other way than by performing a repairing operation.

The *degree* to which the laceration extends varies, of course, in different cases. As a rule, the symptoms and bad effects are in direct proportion to the depth of the laceration. When the laceration extends more than half way up the vaginal portion of the

cervix, it may be said to be "severe;" but when it falls short of this, unless there be great eversion of the lining of the cervix, the case does not seem to be one calling for operative interference. Such would seem to me, at least, a proper restriction to make. And, again, when there is a severe laceration on one side, and a trifling one on the other, it will probably be found sufficient to deal with the more severe one only by operation. The absence of erosion is sometimes observed in long standing cases of originally severe laceration. In such cases, however, it may be found that the cicatricial tissue at the bottom of the tear is extensive, and seems to be the cause of continuous pain, which would necessitate operation for its relief. The cicatricial tissue probably compresses certain nerves, and thus may produce pain at the spot, or induce reflex irritation elsewhere.

When the degree of the laceration is very considerable, it appears to be desirable that an operation should be performed, even in cases where severe symptoms have not yet arisen. For instance, if, on examination at the end of the puerperal period, the cervix be found deeply lacerated, it would be better to restore the integrity of the cervix at once, rather than wait for the secondary irritation and other effects which are in most cases pretty certain to occur later.

In all cases when the condition has become chronic, it is advisable to subject the patient to a careful treatment, consisting of rest, hot douches, and other remedies calculated to improve the condition of the parts, at the end of which a judgment will be more readily arrived at as to the real necessity for an operation; besides which the operation will, by such preparation, be more likely to succeed if finally determined on.

The advisability of the operation in order to *prevent occurrence of cancer of the cervix uteri*, has been strenuously urged in America, and the question is certainly a very important one. For, if it be the fact that a torn cervix uteri is more likely to become the seat of cancer than a sound one, that would constitute an important argument in favour of carefully repairing these injuries, even in cases where the laceration is only slight in degree. What is known as to the relative frequency of uterine cancer where sexual intercourse has occurred, and in those where it has not, favours the conclusion that the latter class is markedly less liable to the disease. At present, we are hardly in a position to say whether this comparative frequency of cancer in the former class of cases is due to the mechanical injury of the structures at the os uteri (including cervical lacerations), or to the increased functional activity of the uterus associated in such cases. That eversions of the mucous lining of the cervix, followed by mechanical bruising of the structures, probably constitutes a condition in a certain degree favourable to occurrence of cancer, may be strongly suspected. In a recent paper, Zinke, who has collected opinions on the subject of the indications

for the operation from various authorities, concludes that, when there is present hereditary tendency to cancer, marked lacerations should be always dealt with by operation, even in cases where no present inconvenience exists, and solely with the idea of warding off the occurrence of cancer. This appears to me to be a proper view to take of the subject. Further, it may be suggested that, if the laceration be not so severe as to necessitate the operation, the desirability of cauterising the torn surfaces, even in cases when there is no special hereditary tendency manifest, presents itself. For it must be recollected that, in many cases of uterine cancer, no history of hereditary tendency is discoverable.

Summary.—There will, no doubt, be differences of opinion as to the indications for the performance of trachelorrhaphy; but the following may be submitted as embodying conclusions at which I have personally arrived :—

The operation is indicated by the presence of a chronic extensive eversion of the cervical lining; by the presence of considerable hypertrophy of the os, the result of laceration, and the more so if hypertrophy and eversion be conjoined; by the presence of chronic severe local pain, evidently traceable to the irritation of a raw surface less extensive in amount, or traceable to cicatricial hardening at the bottom of the fissure; by the association of marked laceration with a troublesome displacement of the body of the uterus; by the presence of repeated miscarriages in a chronic case; by the presence of a severe recent laceration, even in cases where no severe symptoms have had time to develop themselves, with the view of preventing (1) cellulitis; (2) the occurrence of cancer; (3) the supervention of symptoms generally; lastly, by the presence of general severe prostration, inability for locomotion, etc., obviously traceable to laceration.

The operation itself is not, in most cases, a difficult one, but, in some cases, it is so. In assisting to hold the cervix down, I have found the large tenaculum hooked forceps, depicted in my work on *Diseases of Women*, made by Mayer and Meltzer, of very great utility. Sometimes the nodular hypertrophy renders coaptation of the edges, after paring them, not easy, owing to one side of the rent being very short, the other very long. Another difficulty is, in some cases, the excessive hardness of the tissues to be perforated by the needle, which is sometimes so great that much force is required to penetrate the tissues. The needles need to be very strong for such cases. I have found No. 6 silver-wire most suitable for sutures, and have generally removed them in not less than ten days. Probably it would be better to leave them a week or two longer in cases where the patient is very weak and nutritive action feeble. The importance of a preparatory treatment before proceeding to the operation has already been pointed out.—*British Medical Journal*, Jan. 2, 1886, p. 2.

101.—ON RECENT LACERATION OF THE CERVIX UTERI
AND ITS TREATMENT.

By THOMAS ADDIS EMMET, M.D., Surgeon to the Women's
Hospital, New York State.

[Dr. Emmet, in the course of a clinical lecture on "Prolapse of the Vaginal Walls due to Laceration of the Cervix and Injury to the Vaginal Outlet," made the following remarks on the Non-operative Treatment of Laceration of the Cervix.]

There is a great deal to be said on the subject of laceration of the cervix. The lesion is of frequent occurrence. I have no doubt that Eve's cervix was lacerated, and since that time the cervix of nearly every woman who has borne children has been lacerated. I do not believe that a woman can give birth to her first child without more or less laceration of the cervix. It is a very important point to know when an operation is necessary. There are a great many cases of laceration of the cervix in which no interference is required. I sometimes think that almost more harm than good has been done by the operation, although in so many cases there is no operation that can take its place or accomplish so much. It is important to know under what circumstances an operation is required. I have noticed that in the cases in which interference is called for, there has been, as a rule, a bad getting up after the labour. If a woman has no milk, or does not get up well, it is always a suspicious sign of laceration of the cervix, with the occurrence of a certain amount of septic inflammation in the pelvic tissues, and it is probable that the laceration will not heal so long as that inflammation exists. I believe that if obstetricians understood this matter more thoroughly, and gave a little more personal attention to a patient who has been delivered with forceps, or who has had a hard or rapid labor, and determine whether or not pelvic inflammation exists, so that it may then be treated, in the majority of cases nature would readily repair the injury, and that within a few years the operation will be called for less frequently than it is at present. If this pelvic inflammation exists, it should receive proper treatment immediately after labor, for at this time treatment will accomplish more in a few weeks than can be gained in months if the disease is allowed to go unchecked. The early recognition of the trouble is therefore of great importance, as the reparative process would be as active as that which would take place in the uterus under favourable circumstances.

If we have the case going on beyond that time, with involution arrested, with the uterus enlarged, and more or less pelvic inflammation or thickened broad ligaments, which is the usual lesion, the case must now be properly prepared before the cervix should be operated upon. Until the preparatory treatment has been carried out, it is impossible to say what cases require operation and what

cases do not. This is where the mistake is made by many. The patient must be gotten as well as possible before an operation is performed. What you wish to do is to cure the pelvic inflammation and restore the circulation to its proper condition. So long as there is cellulitis, or any form of pelvic inflammation, the circulation must be obstructed, causing the parts to roll out and to exaggerate the existing lesion. I at one time thought that the rolling out was due to mechanical causes, such as standing or walking about, but I am now satisfied that it is due to obstruction of the pelvic circulation. I was once astonished to find that a young girl, with whose history I was well acquainted, apparently had a laceration almost to the internal os. She had cellulitis, and I supposed that an abortion had been produced. I treated the cellulitis, and, as the inflammation improved, the parts rolled back, and she then had a virgin os. I mention this case to show the importance of proper preparatory treatment.

How are you to treat such a case? If possible, she should be treated in a hospital. She should be taken from her home. She is unfit to be a wife, and must be in a position where she has no care or responsibility, and to vegetate, if possible, for a few months. The mind has so much influence over the body, especially in this condition, that it is important to keep the mind tranquil. The main treatment is hot water injections, but these must be given properly. They should be given by the hand syringe, and not with the siphon syringe. Heat, cold, and electricity will cause the vessels to contract and bring about the condition we desire. Electricity will cause the vessels to contract, but only while the current is passing. Cold will cause the vessels to contract, but unfortunately, when reaction occurs, the vessels become larger than before. Heat at first produces a temporary congestion, but if the application is prolonged, contraction of the vessels is produced; therefore, the reaction from heat is contraction. We wish to cause contraction of these vessels; and, if so, we can starve out the cellulitis, and bring about absorption of the inflammatory deposits present. I hold that there is something in the jet of the hand syringe. It probably acts on the same principle as the dashing of water into the face of a person who has fainted. If you give a woman a douche with a siphon syringe, and prolong it for an hour or two, you get about the same effect as from a fifteen minute injection with a Davidson's syringe. If the siphon syringe is used, it must be prolonged for a considerable time. The use of hot water, with the hand syringe, as the patient lies on her back, with the hips elevated, has the effect of puffing out the vagina, so that the hot water comes in direct contact with the vessels, and will accomplish more than any other means of treatment.

The application of iodine will prove of the greatest benefit. This is not to be applied to the uterine canal, for fear of increasing the

cellulitis. I have not made an application to the uterine canal during the last five or six years, except in cases of vegetations, where I have been obliged to use it to control hemorrhage. There exists the closest relation between the surface of the uterine canal and the peritoneum. If you have an assistant, Sims's speculum may be used, with the patient on the left side, so that the iodine may be applied to the posterior cul-de-sac, and to as much of the vagina as possible without coming in contact with the external orifice. The preparation which I use is known as Churchill's tincture of iodine, and is four times stronger than the ordinary tincture. If you have no assistant, the woman may be placed in the knee-chest position, so that Sims's speculum can be held in one hand as the application of iodine is made with the other.

If you have the patient in the hospital under control, you can daily put a pledget of cotton, saturated with glycerine, under the well side of the uterus, behind, in front, or in such a way that the uterus shall be raised somewhat, so as to take the drag off of the thickened broad ligaments. A pessary is not applicable, for it will press against one broad ligament or the other; or, if the inflammation is behind the uterus, you cannot apply it at all. You make the best progress when you have the patient directly under your eye, and can daily use these pledgets of cotton so as to raise up the neck and take the strain from the shortened broad ligaments, for this does much to restore the circulation in the pelvis.

The follicles in the mucous membrane of the cervix undergo cystic degeneration in this condition, and it is very important to get rid of them. As these enlarge and increase in number, they roll out the tissues to a point where, when cicatrization takes place, the parts are almost strangulated, as if a cord were wrapped around the cervix. Everything is to be gained by puncturing these cysts. There are sometimes literally thousands of them, and just as you get rid of them by puncture, you help to restore the circulation, and the parts gradually roll back. It is not until the cysts have been emptied, the flaps reduced in size, and the parts have rolled in again, that you can tell what cases will require operation. You will be surprised at the amount of improvement which can be brought about in two or three months of this treatment, and its use will lessen the number of operations necessary to be performed on the cervix. If the operation is done too soon, these cysts will be shut up within the flaps as a source of irritation, and if you do get the union that is desired, there will be no improvement. On the other hand, even with the uterus four or five inches deep, if the treatment has been properly carried out so that the cysts have been emptied and the cellulitis reduced, it will, in the course of three or four weeks after the operation, return to nearly its natural size.—*Philadelphia Medical News*, Jan. 23, 1886, p. 87.

102.—ON LACERATION OF THE PERINEUM.

By THOMAS ADDIS EMMET, M.D., New York.

[The following remarks were made upon a case of Perineal Laceration, which the author said "may be described by saying that the running string has been lost from the vaginal entrance."]

This is what is usually called a laceration of the perineum. Although we shall not have time to operate, I should like to explain the condition. As a rule, the perineal body is not torn by the child's head. It may be torn by the forceps from above downward. This lesion of the perineum is very different from what it is supposed to be. It is a tear directly across the passage and just within the vagina behind the fourchette. The idea is, that when the child's head is pressed against the muscular barrier, and the outlet of the vagina is not dilated enough for it to pass, the canal must be torn at its insertion, if the force behind is able to overcome the resistance in front. It is like a strong man trying to go through a door which is not large enough to permit him to pass through, and, in his efforts, he may carry the doorframe with him; but the force could not so be applied that he would simply break the sill across. The perineum is generally torn when the sphincter is, and when the tear begins and extends from before backward in the median line. The relaxation and protrusion of the tissues, in this case, are due to the transverse tear I have described, and the cicatricial line can be plainly seen. It has separated the pelvic fascia just where it is reflected from the sulcus on either side over the muscles at the vaginal outlet. In no case do the fibres of the levator ani muscle interlace, and often they do not approach within half an inch of each other. When the transverse tear takes place, and the head continues to advance, the connective tissue between these muscles separates, and the muscles themselves are drawn aside, as a curtain, with often not the slightest injury to the skin in front, or to the mucous coat of the vaginal canal. The transverse perineal muscle, from its insertion in the tuber ischii behind, must naturally tend to draw the muscles apart and roll out the tissues, as the lower lip would fall off from the bone if the attachment in front were cut away. In other words, the real extent of injury is an exaggeration. It is very rare that any portion of the skin, or any tissue outside of the vaginal outlet, is torn in these cases.

What is the effect of this? The woman does not suffer from want of support to the uterus when she has what is called a laceration of the perineum. The perineum has nothing to do with its support. A woman's perineum is certainly lacerated when the sphincter is torn through the median line, and yet I have to see the first woman who has complained of difficulty in walking or standing from this cause. That, of itself,

shows that it is not the perineum that supports the uterus. The purpose of the perineum is to support the curve of the rectum and prevent the rectum from bulging into the vagina. When the muscles are separated in these cases, we must have a rectocele. The sulcus on each side of the vagina is in direct connection with the connective tissue of the pelvis. When the parts are normal, the upper portion of the vagina is as fixed as the roof of this room. The fascia and connective tissue on each side bring the posterior wall up against the anterior one. It is like taking a rubber tube and making lateral traction: the sides will come together. I claim that separation takes place, across the vagina, behind the outlet, where the vagina is inserted into the muscles. When this occurs, the fascia on each side is divided. As soon as that is done, there is a slacking of all the connective tissue in the pelvis, and the woman suffers, not from a want of support to the uterus from loss of the perineum, but from want of proper support to the blood-vessels, which, without the needed support, will enlarge indefinitely. After a long time, when the uterus has become heavy from continued congestion, it comes down to the floor of the pelvis, becomes retroverted, and so on, but this is not the case in the beginning. I cannot explain this slacking up of the pelvic fascia better than by describing something that occurred to me when a boy, in the days of trundle-beds. With the springs of to-day you know nothing about the manner in which the sacking-cloth was stretched on these beds. The bed in which the children slept was pushed under a larger one, and the bedding was supported by a piece of canvas or sacking, which was kept tight by means of ropes secured to pins in the frame of the bed. By long usage, these pegs had become worn at the bottom, and I well recollect the time we had when the rope would slip off from the pins. When several loops of the rope slipped at the foot of the bed, the sacking would of course become slack up the middle. Suppose the rope could not be put on the pins again, with the condition I have drawn here on the board, could we not overcome the difficulty by bringing up the slack in a fold on each side across the lower angles of the bed? This fold is just in the same direction and relatively in the same position where we bring up the tissues in the vagina, with the object of making traction on the fascia and connective tissue of the pelvis, that the proper support may again be given to the rectum and bloodvessels. To do this, and, on the same principle as I did in the other operation on the anterior wall, to dispose of the excess of tissue about the urethra, you are to denude a crescent with a horn extending into the sulcus on each side. This denuded surface will, therefore, extend across the vagina, and just within its entrance, and will include the anterior face of the rectocele and the posterior face of the muscular barrier on each side of the vaginal outlet. These two surfaces are to be brought together by interrupted

sutures, as was done on the anterior wall, and we thus dispose of the rectocele. The separated muscles are then to be brought together by special sutures.—*Medical News*, Jan. 23, 1886, p. 89.

103.—ON THE PREVENTION OF LACERATION OF THE PERINEUM IN PRIMIPARÆ.

By Prof. J. A. TEMPLE, M.D., Trinity Medical School, Toronto.

The British Medical Journal, Nov. 21, 1885, contains an article on this subject by Dr. David Gaussen, which deserves more than a mere passing notice. Practically, it is of great value.

For many years, I have been greatly disappointed with the means recommended for prevention of laceration of the perineum; and, after most careful study of the subject, I came to the conclusion that the only method of any value was to prevent extension of the head from occurring, and compel it to be born in a state of forced flexion.

In primiparæ, the vulval orifice is small and resisting, and the occiput in its descent does not reach the pubic arch (as it does in multiparæ) before extension commences; as a result of this extension, the long occipito-frontal diameter, which measures about four inches and a half, is obliged to traverse the perineum, to be followed by the fronto-mental, which measures about three inches and a half, making in all part of a circle about eight or nine inches in length. This naturally stretches the perineum and vulval orifice to its utmost capacity, and it is during this time that rupture is apt to occur.

To guard against this overdistension in cases where I fear laceration, after the head has reached the floor of the pelvis, and just previous to extension, I have been in the habit of applying the short forceps, and then, by carrying the handles backwards, I flex the chin on the chest, while, at the same time, gentle traction is made downwards and backwards. In this way, I deliver the occiput first, keeping the chin close to the chest; this brings the cervico-bregmatic diameter, which is but three inches and a half, through the vaginal orifice. This plan saves the perineum one inch or more of distension. I have had the best results from this practice, and have taught it to my class of students for the past three years.

The practice as taught by Dr. Gaussen I think somewhat difficult to carry out with the fingers, though he desires to obtain the same end as I here advocate. With the forceps, it is easy and safe.

I think this subject one of great importance, and worthy of a trial by any who may have any doubt as to its efficiency. In fact, I may say I am doubtful of the propriety of carrying the handles of the forceps forwards, as taught in the text-books, in any case.—*British Medical Journal*, Jan. 30, 1886, p. 191.

104.—ON THE MORE FREQUENT EMPLOYMENT OF FORCEPS.

By T. MORE MADDEN, M.D., President of Obstetrical Section
of the Irish Academy of Medicine.

Of all the improvements which have tended to the greater safety of parturition, probably one of the most important is the more frequent and judicious use of the forceps in modern practice. I may, therefore, very briefly refer to some statistics, on which I have elsewhere enlarged, in proof, not only of the saving of maternal life and suffering which has resulted from the gradual re-introduction of the forceps into common use, but, still more, as showing that an increasing frequency of forceps cases may be regarded as practically synonymous with the desuetude of child-destroying instruments. Formerly the forceps was hardly ever resorted to until the parturient woman, worn out by the protracted sufferings she had endured, was almost moribund, and when, too, the child was probably dead, in consequence of the long continued pressure it had been subjected to. Thus, twenty-six years ago, Dr. J. Hall Davis, in his work "On Difficult Parturition," informs us that he only found it necessary to use the forceps on seven occasions in 7,371 deliveries, or once in every 1,053 labours. In the statistical reports of the successive Masters of the Dublin Lying-in-Hospital, we find the most conclusive evidence of the advantage which has followed the more judicious use of the forceps in later years in that institution. During the Mastership of Dr. Joseph Clarke, from 1787 to 1794, there were 10,387 deliveries in the Hospital, and the forceps was only applied in 14 of these, with 6 deaths. But the more easily used perforator and crotchet were resorted to in 49 cases, with 15 deaths. And in his private practice, extending over forty years, Dr. Clarke only once attempted to use the forceps. In Dr. Labatt's Mastership, from 1815 to 1822, during which time 21,867 births took place in the Hospital, the forceps does not appear to have been used in any instance. From 1826 to 1833, Dr. Collins used the forceps in 24 cases out of a total of 16,654, but employed the perforator in no less than 118 cases, with 24 deaths. From 1842 to 1845, Dr. Charles Johnson used the forceps in 18, the vectis in 16, and the perforator in 54 cases, in 6,702 deliveries. From 1847 to 1854, in Dr. Shekleton's Mastership, there were 13,748 deliveries in the Rotunda, and the forceps was now used in no less than 220 of these, and the perforator in 54. Dr. M'Clintock, who ruled the Hospital from 1854 to 1861, brought the forceps into still more frequent requisition, and in his last three years of office employed it, or the vectis, in 76 cases, or once in every 60, in 3,700 deliveries, whilst the number of craniotomy cases was reduced to 5. The succeeding Master, Dr. Denham, was a still more constant advocate for the timely use of the forceps. To Dr. Johnston, the next Master, belongs the credit, however, of

having brought the forceps into more frequent use than had ever previously been the case. Thus, from November, 1868, to November, 1874, in 7,027 deliveries, the forceps was used in no less than 639 cases, or about once in every 11 cases, with only 39 deaths, while the proportion of craniotomy, or cephalotripsy, cases has been reduced to 29.

The foregoing statistics, as I have already said, unquestionably demonstrate that, as the forceps is used more frequently, the mortality in the cases in which it is employed diminishes; and secondly, also shows the happy effect of the free use of the forceps in lessening the proportion of craniotomy cases.—*Dublin Journal of Med. Science*, Jan. 1886, p. 23.

105.—ON DELIVERY IN BROW PRESENTATIONS.

Dr. E. Blanc, in the *Arch. de Tocologie*, July, 1885, analyses and studies an interesting work which has just been carried out by M. Devars, on delivery in brow presentations; it is proposed in a rapid analysis to call attention to the facts, either new or original, which have been brought forward in this investigation. M. Devars divides his work into five parts, viz., the history of the subject, the signs and frequency of these presentations, their mechanism and etiology, their diagnosis, and, lastly, the therapeutical indications to be derived. The historical part it is not necessary to dwell upon, nor upon the signs of these presentations furnished by the anatomical peculiarities of the frontal and neighbouring regions; attention may be turned at once to the question of frequency. Cases of brow presentation do not seem to be very common. Heinricius, in the Maternity of Elsingfors, found only 12 instances out of 5000 confinements; Mangiagalli, during a period of five years, collected 64 cases, 17 of which occurred at the Maternity of Milan, but does not say out of what total of labors. Devars, examining the records of the Clinique d'Accouchements at Lyons for the last five years, found 5 cases in 1402 labors.

By what mechanism is the expulsion of the head effected in these cases? It may be described briefly as follows:—The superior maxillary bone corresponds to the occiput in vertex presentations, to the chin in those of the face; whatever the position of this bone at the onset of labor, the expulsive forces will always tend to bring it beneath the symphysis pubis, which is to furnish it with a *point d'appui*, while the longitudinal diameters of the head, the naso-bregmatic, the naso-sagittal, and the naso-occipital clear in succession the pelvic outlet and the vulva. After the occiput has become freed from the posterior commissure, the mouth and chin will appear in front of the pubis. The deformity of the head in these presentations is considerable; the head compressed in its suboccipito-mental diameter assumes the form of a triangle, the base of which, viz., the occipito-frontal diameter, may measure 13,

14, or even 15 centimetres (5.1, 5.5, or 5.9 inches). Such a lengthening of the longitudinal diameters of the head would appear a source of danger to the vulva and perineum. but it is to be noted that at this stage the face rests by the superior maxillary bone or by the nose against the back of the symphysis, while the forehead is free in the vulvar orifice; a naso-occipital diameter shorter than the occipito-frontal clears the vulva, and it is only after the occiput is disengaged from the posterior commissure that the chin appears below the pubic arch. Too great a distension of the soft parts is thus avoided. Devars admits an equal likelihood of these presentations becoming transformed into those of the vertex or face; Mangiagalli objects to this; he compares the foetal head to a triangle having its apex at the forehead and its base formed by the occipito-mental diameter; but one of the sides, viz., the fronto-mental, is the shorter; instead, then, of the base of the triangle engaging parallel to the pelvic inlet, it will be inclined at an angle, the forehead will descend lower in the pelvic cavity than the occiput, and the engagement of the head in the form of a brow presentation is thus rendered possible: clearly, if this presentation undergoes a transformation, the face should succeed to the brow. Belluzi never saw a brow presentation end in a vertex presentation. Which of these views is correct? Probably a distinction should be made according as the head is slightly engaged at the inlet, or has descended well into the cavity of the pelvis. In the first case the position of the head may change, producing readily the presentation of either face or occiput; in the second, the chin being lower than the occiput, a change to the occipital presentation is less likely.

Among the causes which produce brow presentations may be quoted the resistance of the cervix, uterine obliquity, hydrocephalus, thoracic or abdominal dropsy, twists of the cord round the neck of the foetus, small size of the child, and, lastly, pelvic contractions. Observations made by ourselves experimentally, as well as the opinion of numerous authorities, confirm the belief that contractions of the pelvis play an important part in producing the presentations now under consideration.

The diagnosis is not difficult, as a rule; the prognosis is serious for both mother and child, but especially for the latter. M. Devars puts the infant mortality at nearly fifty per cent., while other authors make it only twenty or twenty-four in the hundred. In 9 cases recorded by M. Devars, delivery occurred spontaneously in 3, and in 6 forceps were used; in the three cases two mothers and two children died, while in the 6 cases only one infant succumbed.

Regarding treatment, it is to be noted that in most cases operative interference is called for; among the modes of procedure most approved are change of presentation, effected by manual manipulation, version, the use of forceps and of the lever, and, finally, as a

last resource, craniotomy. While the head is still at the pelvic inlet, change of presentation is particularly applicable; indeed, it may be attempted even when the head is already in the pelvic cavity, though in this latter case we should endeavour, if possible, to bring down the chin.—*American Journal of Med. Sciences*, Jan. p. 320.

106.—ON ANTEFLEXION OF THE UTERUS—ITS CLINICAL SIGNIFICANCE.

By WILLIAM GOODELL, M.D., Professor of Gynæcology in the University of Pennsylvania.

Many text-books speak of this flexion as a lesion, and exhibit many forms of pessaries devised to rectify this so-called displacement. But in the great majority of cases neither anteflexion, nor, for the matter of that, anteversion, is pathological. In almost every unmarried or barren woman you will find the womb either bent forward or tilted forward, and resting on the bladder; for this in varying degrees is its natural position. The mistake made is in attributing to this natural position of the womb the various forms of pelvic trouble, especially that of irritability of the bladder, to which women are so liable. But the kinship between the brain and bladder is a remarkably close one. This has lately been studied by two Italian physiologists, Mosso and Pellacani, who go so far as to contend that "every mental act in man is accompanied by a contraction of the bladder." The irritability of the bladder is then one of the first symptoms of loss of nerve control. Everybody is liable to it. You, on examination day, will be annoyed by it. Many a lawyer before pleading an important case, and many a clergyman just before delivering a discourse, is compelled from sheer nervousness to empty the bladder. So it is with the lower animals, which, when frightened, micturate involuntarily. A nervous bladder is, then, one of the earliest phenomena of nervousness. Now, a hysterical girl, or a woman whose nervous system has collapsed under the strain of domestic cares, consults a physician for such symptoms of nerve prostration as wakefulness, utter weariness, a bearing down feeling, backache, and perhaps, above all, an irritable bladder. Upon making a digital examination, he, of course, finds the fundus of the womb resting on the bladder, and at once jumps to the conclusion that the whole trouble is due to the pressure of the womb on the bladder, viz., to the existing anteflexion or to the anteversion, as the case may be. He now makes local applications, and racks his brain to adapt or to devise some pessary capable of overcoming the supposed difficulty, forgetting that the upward, or shoring, pressure of the pessary on the bladder must be greater than the corresponding downward, or gravity, pressure of the womb. There is, in fact, no pessary but the dangerous stem-pessary which can meet the end without

pressing upon a fold, or double thickness, of the bladder. But, very fortunately, anteflexion is not often pathological. It is certainly not pathological in the foregoing instances; for the symptoms, especially the vesical ones, are not due to the pressure of the womb upon the bladder, but to sheer nervousness, or nerve prostration, which is the thing to be treated, and not the womb. There are exceptions to this rule, but not many; for instance, a womb, heavy from subinvolution, or from the presence of a fibroid, may make uncomfortable pressure on the bladder.

If anteflexion is the natural position and condition of the womb, when is it pathological? It is pathological whenever it is the cause of dysmenorrhœa or of sterility. Usually dysmenorrhœa and sterility are associated, but occasionally the latter is the only symptom; for it is evident that the crooked womb can more readily expel fluid contained within it than admit a fluid outside of it. The phenomena of a typical case of dysmenorrhœa from anteflexion or from retroflexion are as follows:—At the outset of menstruation, the first few drops are somewhat painful. The pain then increases in severity until, reaching its acme, a slight gush of menstrual fluid takes place, followed by a lull in the sufferings. The pain then gradually increases, until it culminates in another gush. The meaning of this is, that the bend in the womb imprisons the menstrual fluid, which goes on collecting in the cavity until the swelling up of the womb straightens out the bent portion, dilates the narrow canal, and allows the pent-up contents to escape, just as the coils of a hose first swell and then straighten out before the water can flow through them. Relief from pain lasts until the fluid begins again to collect. This is called stenosis from angulation.

Sometimes a girl has little or no pain at her menstrual periods. She marries, does not conceive, and by and by dysmenorrhœa sets in, which goes on increasing. What is the explanation of this? It means that the flexed canal of the womb was originally just large enough to permit the slow escape of the menstrual fluid; but that the congestions from sexual intercourse have caused a thickening of the lining membrane of this canal, which has narrowed its calibre. Then again, the uterine efforts to force out the pent-up fluid cause the various tissues of the womb to hypertrophy. We see this also in unmarried women, the dysmenorrhœa increasing with their age. Nature intends that the periodical congestions of the womb should be interrupted by pregnancy and lactation, and without these interruptions the mucous lining of the womb is liable to thicken, and by its thickness to narrow the canal. If, then, to these menstrual congestions, be added the sexual congestions of marriage, this hypertrophy is greatly increased, and the barren wife suffers more than the old maid.—*Philadelphia Medical News*, Dec. 12, 1885, p. 645.

107.—ON THE RESULTS OF FORCIBLE DILATATION OF THE CERVIX FOR STERILITY AND DYSMENORRHOEA.

By Prof. WILLIAM GOODELL, M.D., University of Pennsylvania.

[Dr. Goodell writes as follows of the results of his operation described in the *Synopsis* of this volume.]

In its results this operation is not an infallible one. I have thrice been obliged to repeat the dilatation, and would like to do so in several cases did the women permit. In a very few cases I have been forced, as a final resort, to nick a pinhole os externum. But I had not then learned how far I could safely stretch open the uterine canal, and the operation of dilatation was, therefore, not so efficiently performed by me as it is now through a larger and riper experience.

It is not to cases of sterility or of dysmenorrhœa only that rapid dilatation should be limited. As before stated, I use it to stretch open the canal for the admission of the curette and of tents, or for the purpose of making applications to the uterine cavity. In cases needing irrigation of the uterine cavity, I first dilate the canal with the slender instrument, and introduce the nozzle of the syringe between the separated blades. This gives a free avenue for the escape of the liquid, and robs of its dangers this form of intrauterine medication. I also resort to the dilator in order to explore the womb with the finger. For instance, in a given case of menorrhagia in which a polypus or some other uterine growth is suspected, in order to avoid the delay and the dangers inseparable from the use of tents, I put the woman under an anæsthetic, and, after the rapid dilatation of the cervical canal to the utmost capacity of the instrument,—viz., one and a half inches,—am enabled to pass my finger up to the fundus. This is accomplished either by drawing down and steadying the wound by a volsella forceps fixed on to the anterior lip, or, in thin subjects, by forcing the womb down upon the finger through suprapubic pressure on its fundus. In this way I have, over and over again, at one sitting, discovered a uterine growth, twisted it off, and removed it. Usually in these cases more difficulty has been experienced in removing the polypus or other growth through the narrow canal than in twisting it off from its uterine attachment. It often has to be wire-drawn before its removal can be effected, and sometimes it will be found needful to enlarge the os uteri by a few nicks. Usually, when the menorrhagia has been free, the cervical tissue is so lax that, after dilatation, the index-finger can penetrate the canal and reach the fundus, but sometimes only its tip can be made to pass the os internum. Yet even this limited degree of penetration is commonly quite enough to decide the presence of an inside growth. If it be not enough, I invariably search for the growth with a small pair of fenestrated forceps, and I have repeat-

edly seized and removed one, the existence of which was merely suspected. After such operations the uterine cavity and the vagina are thoroughly washed out with a two and a half per cent. solution of carbolic acid.

I am sorry to say that I have not kept full records of all my cases of rapid dilatation. For instance, I have rarely tabulated office cases of dilatation in which ether was not given. Nor has any note been made of cases in which dilatation was performed under ether for curetting, for digital exploration of the endometrium, or for the removal of uterine growths. I have tabulated merely cases of dysmenorrhœa in single or in married women. In the married, with but three exceptions, which will be noted in the proper place, painful menstruation was associated with sterility.

Including all the cases of dilatation performed under ether, I must have had nigh three hundred and fifty cases. I have limited myself to these cases because the use of an anæsthetic implies full dilatation—one in which serious injury, if ever, would most likely be sustained. Yet, there has not been a death or a case even of serious inflammation in my practice, and the results have been most satisfactory—far more so than when the cutting operation was performed by me.

Of single women, there were one hundred cases; of married, one hundred and nineteen; making in all two hundred and nineteen. Of the unmarried, twenty-four were unheard from after the operation, leaving seventy-six from which any data could be obtained. Of these, forty-five cases were virtually cured; twenty-four more or less improved; and seven were not at all improved. Of these seven that were not benefited by the operation, five subsequently had their ovaries removed—one of them by another physician, and four by myself; of the latter, one died. In each one the ovaries had become so changed by cystic or by interstitial degeneration as to make the dysmenorrhœa otherwise incurable. Of the twenty-four improved, there was one on whom oöphorectomy was also performed; for, although the dysmenorrhœa was partly relieved by dilatation, ovarian insanity and menorrhagia were not. The operation was a successful one, and my patient was not only cured of her hemorrhages, but she regained her reason. Out of these cases, the majority, although not wholly cured, were greatly improved. For example, one of them was formerly bed-ridden during the whole period of her menstrual flux, and had then to take large doses of morphia. She also suffered at those times from hæmatemesis and epistaxis. Since the operation she experiences pain for merely two hours, needs no anodyne, and has lost her ectopic hemorrhages. Her gain in health and flesh has been great. Another one, who was wholly crippled by her sufferings and made nervous by the dread of them, is now a busy nurse. For one hour at every period she suffers acutely, but not enough to overcome

her dread of taking ether and of having a second dilatation performed. Of those cured, two had Sims's cutting operation performed previously without benefit, and were afterwards dilated; three were dilated a second time before a cure could be effected. The word "cured," in some of these cases, does not mean that the women were wholly free from any pain whatever, but that they did not suffer sufficiently either to go to bed or to take any stimulants or anodynes.

Of the married, sixty-nine were heard from. Of these, forty-seven were virtually cured, eighteen improved, and four unimproved. Out of these sixty-nine cases, eleven were not in a condition to conceive; four of them from fibroid tumours of the womb, two from destructive applications of silver nitrate to a torn cervix, three from being over forty-one years of age, and one from being a widow. This leaves but fifty-eight capable of conception, and of these, eleven, or about nineteen per cent., became pregnant. But the ratio is, in fact, larger, for I know that several of my patients, fearing pregnancy, employed preventive measures after the operation, and I suspected several others of doing the same thing. Then, again, I believe that yet others, who consulted me merely for painful menstruation, have not reported their subsequent pregnancies. For instance, of the eleven cases of pregnancy, five came to my knowledge incidentally and not directly from the ladies themselves. It is not much more than a year ago that I learned, by the merest accident, the subsequent history of a clergyman's wife whose cervical canal I had dilated six years ago. She had been making up for lost time by giving birth to twins within a year after the operation, and later to several other children. She had been married eight years before she came to me, and had had her cervical canal dilated by tents and slit up with Peaslee's metrotome by a skilful surgeon.

One word more. While you can expect much from this operation whenever it is performed for dysmenorrhœa caused by flexion or by stenosis, you cannot be so sanguine with regard to its results in sterility. The reason of this is, that sterility associated with dysmenorrhœa often leads to such tissue changes in the womb as in time to make it incapable of forming a nest for the ovum, which, therefore, either escapes or perishes.—*Phil. Med. News*, Dec. 12, p. 647.

108.—ON DISPLACEMENTS OF THE OVARIES.

By THOMAS MORE MADDEN, M.D., President of the Obstetric Section of the Academy of Medicine in Ireland, &c.

Ovarian herniæ may be found in the inguinal region, and may be either direct or oblique. In the former the tumour appears in the groin above Poupart's ligament; in the latter it follows the course of the canal downwards and forwards, and makes its way

into the labium. Occasionally the displacement is observed in the femoral region, immediately below Poupart's ligament, and to the inner side of the femoral vessels. But still more frequently the ovary is displaced downwards into Douglas's space, and this prolapse may, for all practical purposes, be here considered as a form of ovarian hernia. In these cases the left ovary, as from its anatomical position might be anticipated, is that usually prolapsed into the recto-vaginal fossa, where, on examination, it may be discovered as a small, oblong, elastic, and highly sensitive tumour, bulging into the post-cervical vaginal *cul-de-sac*.

Although in some instances congenital, these herniæ most commonly occur in patients whose abdominal parietes have been relaxed, and viscera compressed, by repeated gestation. They may also be induced by similar immediate causes as other herniæ—such as the violent muscular efforts of the second stage of labor, lifting a heavy child, straining at stool, &c. But in the most frequent of all forms of ovarian displacement—namely, that downwards into Douglas's space—the causes of the protrusion are more commonly gynæcological, as, for instance, the *vis à tergo* of abdominal or uterine tumours, or the direct tension on the uterine appendages occasioned by displacements of the uterus.

Symptoms.—Ovarian hernia manifests itself by the sudden occurrence of a small ovoid tumefaction possessing certain distinctive characteristics, and making its appearance in either the inguinal or femoral regions, or in the labia, or directly downwards in Douglas's space. This tumefaction, as observed in its ordinary condition, is about the size of a large walnut, and when inguinal is usually very slightly sensitive. Before the menstrual periods, however, the extended ovary invariably becomes enlarged—in one instance recently under my care it increased to the size of a small orange—and then gives rise to a dull aching pain, which gradually subsides, so that shortly after the termination of the menstrual epoch the displaced organ resumes its previous condition, and generally ceases to give any active trouble until its functional activity is again stimulated by the approach of the next catamenial period. In some instances, however, these symptoms do not thus disappear in the interspace, the dull sickening pain remaining permanently, and the congestive hypertrophy of the displaced organ continuing to increase until relieved by suitable treatment.

Diagnosis.—That the differentiation of ovarian displacements was formerly very imperfect is, I think, evident from the scant notice of such cases by the older gynæcologists. by whom their existence was either ignored or confounded, when external, with enlarged inguinal or femoral glands, or, when labial, with other tumours in that situation; whilst ovarian protrusion into Douglas's space was apparently in many instances taken for pelvic abscess, subperitoneal pedunculated fibromata, hæmatocele, or the reflexed

fundus uteri. We at least have now no excuse for similar errors in the diagnosis of ovarian herniæ. These, whether inguinal or femoral, may be readily distinguished from enterocele by the entire absence of the characteristic smoothness and globular form, gurgling on compression and resonance on percussion of the latter; whilst from epiplocele they may be differentiated by contrasting the firm, clearly defined ovoid tumour observable, if it be ovarian, with the soft, doughy feeling and irregular, ill-defined outline of the hernia, if omental. From enlarged inguinal or femoral lymphatic the ovarian tumefaction may be recognised by the smaller size and multiple character of the former. From pelvic, psoas, or other abscess, the distinction of an extended ovary is obviously rendered easy by the history of the case, as well as by the presence or absence of fluctuation. Lastly, ovarian prolapsus into Douglas's space is distinguished from a posterior uterine displacement, or a fibro-myoma, by recto-vaginal examination and the use of the sound. Whilst from the tumefactions in the posterior vaginal *cul-de-sac* that may be occasioned by cellulitis, rectocele, tubal or parovarian cysts, or abscesses, or pedunculated sub-peritoneal fibromyomata, ovarian prolapsus may be differentiated by the methods of examination just alluded to, which will enable us to determine not only the existence of any uterine mal-position, but also the character of the tumour and the presence of any fluctuation therein. If the uterus be thus found normal in size and position, if there be no fluctuation discoverable, and if at the same time in the posterior *cul-de-sac* we discover a small, well-defined, firm, ovoid tumour, enlarging regularly at each menstrual period, and which, on slight pressure, gives rise to peculiarly sickening dull pain, we need have little hesitation in concluding that we have to deal with a case of prolapsed ovary.

Treatment.—The treatment of ovarian displacements is necessarily dependent on the situation of the extruded organ in each case; or, in other words, whether it be found at either of the abdominal rings, or in the labium, or in the recto-vaginal interspace. In the first of these, whether the ovarian hernia be above or beneath Poupart's ligament, an effort should in the first instance be made at its reduction by taxis. In the majority of cases, however, such herniæ are irreducible when seen by the gynæcologist, and even in those few instances in which reduction is possible, the retentive pressure of a truss is neither endurable nor effectual. In most cases of this kind we must, therefore, be content to protect the ovary if protruded externally from further extrusion or injury by a well-fitting hollow truss. But before this an attempt should be made to lessen the local hyperæsthesia of the generally hypertrophied displaced gland by sedative applications, and, if necessary, by leeching, &c. whilst the constitutional irritation almost always present in such cases should be allayed by suitable constitutional treatment.

When, however, these measures prove ineffectual in relieving the almost constant, worrying, dull aching pain which at each monthly period in these cases becomes accentuated into acute suffering—when, too, the patient's health is endangered by the gastric disturbance and constitutional irritation occasioned by this apparently trivial and too often neglected displacement—we should then fall back on the extirpation of the dislocated and probably diseased gland as the only resource available under the circumstances.

[Three cases are here referred to by the author. . *Case 1.*—The ovarian hernia occupied the right labium. The patient was greatly emaciated, despondent, and hysterical, and the tumour was very painful. The tumour, on removal, was found to extend through the canal, to the walls of which it was adherent to the internal ring, where it tapered off to a narrow pedicle. The pedicle was double ligatured before division. There was very free hemorrhage from the wound. The patient became suddenly pale, and collapsed on the following day, and died apparently from internal hemorrhage. *Case 2.*—The displaced organ was in the left inguinal region. The patient made a rapid recovery after extirpation. *Case 3.*—Similar to case 2, but not operated upon. (See also *Synopsis.*)]—*Dublin Journal of Medical Science, Feb. p. 112.*

109.—CASE OF HYSTERECTOMY IN WHICH REMOVAL OF THE UTERINE APPENDAGES HAD FAILED TO ARREST THE HEMORRHAGE OR GROWTH OF THE TUMOUR.

By LAWSON TAIT, F.R.C.S., &c., Birmingham.

Mrs. A. P., aged 40, was placed under my care by Dr. Lycett, of Wolverhampton, in January, 1882. She had a large myoma, which caused persistent hemorrhage. For its treatment, I proposed the removal of the appendages, and proceeded with this operation on January 4th, 1882. I removed the left tube and ovary, as I thought at the time, completely, but the right tube and ovary could nowhere be found, although I extended my incision to the extreme length of eleven inches and a-half, and pulled the tumour right out of the abdomen. Still, I could not find any trace of the ovary or tube on the right side. I replaced the tumour, and the patient made an admirable recovery. But neither the growth of the tumour nor the recurrence of menstrual hemorrhage were in the least degree affected by that operation. In March, 1884, she again came under my care for the purpose of having the tumour removed. It had increased to quite three times the size it was in 1882, and her condition was that of extreme debility and anæmia from hemorrhage. I opened the abdomen on March 25th, for the purpose of removing the tumour; but the hemorrhage was so terrific from the adhesions which had to be separated, that I

desisted, and closed the wound. The patient went home in about three weeks, with no other hope before her than that of a speedy death. She was one of the thirteen cases of which I spoke a few months ago, which then were known to me to be in progress of death from bleeding myomata. The only remaining interest which I had in the case was the expectation of having a post-mortem examination, to discover, if possible, why my original operation had failed.

One day, early in August, I happened to be in Wolverhampton, and called to see how the patient was, and, to my surprise, found her still alive, and able to get about in a sort of fashion, with the hemorrhage still going on, and certainly no kind of improvement effected in her condition. The tumour had grown until it occupied the whole abdomen, and interfered very much with her breathing. The patient was extremely thin, and of a most ghastly white colour. She is a woman of remarkable pluck, and when I suggested to her that, if she liked, I would try the operation of removal of the tumour once more, explaining to her that I would complete the operation, no matter what it cost, she yielded a ready consent. Therefore, again, on September 5th, assisted by Mr. J. W. Taylor, I succeeded in removing a tumour somewhere about forty pounds in weight. The adhesions were all in front on the line of the old incision. The tumour itself proved to be, as I had all along suspected, one of the large soft oedematous myomata, occupying the anterior wall of the uterus, the cavity of the organ lying quite behind it, and measuring 9 inches long, and $3\frac{1}{2}$ inches wide at the base. After removal of the tumour, about four quarts of serum exuded from it in the course of a few hours. The pedicle was broad, but easily secured by a clamp. The patient has made a rapid and easy recovery.

Very careful examinations of the tumour were made independently by Mr. Taylor and myself, and we came exactly to the same conclusions, which are as follows. That there was no aperture on the right corner of the uterus, and that there was no trace of the right ovary or tube. The aperture on the left corner of the uterus was large enough to admit a No. 5 catheter, and there was more than two inches of the left Fallopian tube outside, which had not been removed at the original operation. No trace could be discovered of the left ovary. This ovary, fortunately, I had preserved, and, when I re-examined the organ which had been removed on January 4th, 1882, I found that its removal had been quite complete, but that only about one inch of the outer part of the Fallopian tube had been removed with it. Here, then, we have an extremely curious condition. The appendages on the right side were congenitally absent. The failure of the removal of the uterine appendages to arrest the growth of this tumour had always been regarded by me as due to the fact that the tumour was one of the

soft œdematous myomata, and the case is alluded to in my recent paper in the *British Medical Journal* as No. 25, and as being the only real failure in my experience up to the time included in that paper. Now, the evidence is to the effect that the failure was due, not to the peculiar nature of the tumour, but to the fact that I did not completely remove the only Fallopian tube which the woman possessed. In speaking of cases of myoma, I have repeatedly alluded to three cases in my experience where I have failed to arrest the growth of the tumours by removal of the appendages. In all three cases, I have regarded the reason of this failure as being due to the nature of the tumour, that of the œdematous myoma. In this, the first of the three cases in which I have had an opportunity of verifying the accuracy of my opinion, my view of the tumour has been correct, but it seems to me far more probable that the failure of my first operation was due to the incomplete removal of the tube, than to the intrinsic quality of the tumour. I need not point out that this case goes a long way to show that removal of the ovaries has nothing to do with the brilliant results of these operations for bleeding myoma. As I have often said, in many cases I have deliberately left the ovaries, and yet success has been perfect. In this, the ovary was absolutely removed, and the operation failed. This case is one of thirteen patients who were in the process of death from myoma, to whom I alluded in a speech made to the British Gynæcological Society. I hope to be able still further to reduce the list after such an encouraging experience.

I have just received a letter from my friend Dr. Keith, in which he tells me, to my intense delight, that he has been able successfully to remove another from this list of impending fatalities. I have not the slightest doubt that, in every one of those thirteen cases, if the operation were done under the improved methods of Dr. Keith, we should have a successful result. But, unfortunately, the patients shrink from the proceeding from which alone they can derive any prospect of benefit.—*British Med. Journal*, Oct. 3, 1885, *p.* 645.

110.—ON PAPILLOMATOUS CYSTIC DISEASE OF THE BROAD LIGAMENTS.

By J. GREIG SMITH, M.A., Surgeon to Bristol Royal Infirmary.

[Mr. Smith narrates three cases of this comparatively rare condition, in which the growth was removed with success. The headings of the cases are as follows:—*Case 1.*—Papillomatous disease of right broad ligament; intimately attached to much enlarged uterus; enucleation; posterior surface and fundus of uterus denuded of peritoneum; free hemorrhage; use of actual cautery; recovery; patient aged 32; duration of disease, 12 months. *Case 2.*—Papillo-

matous disease of left broad ligament; reliable history of rupture on at least twelve occasions; enucleation of growth, with denudation of fundus and part of body of uterus; free bleeding; actual cautery applied to uterine tissue; patient aged 40; duration of disease, 4 years. *Case 3.*—Papillomatous cystic disease of right broad ligament; suppuration in minor cysts; bladder much elevated and spread over tumour; enucleation after denudation of part of uterine surface; pyo-salpinx on left side removed; patient aged 47; duration of disease, 2 years.]

The points of resemblance in these three cases as to clinical signs and symptoms, peculiarities of operative procedure, and nature of growth removed, are too close to be merely casual. They belong to a class which is not uterine and which is not ovarian. They lie chiefly in the broad ligament, and they contain cauliflower papillomatous growths. While not pretending to offer opinions as to their exact nature and pathological origin, for which the material at my disposal is insufficient, I have no hesitation in placing them in the class which Mr. Alban Doran describes as "Papillomatous Disease of the Broad Ligaments." Leaving the pathology in his competent hands, I shall here shortly sum up whatever clinical features they seem to have in common. Such summary must necessarily be only a skeleton outline, for the rarity of the disease and the paucity of recorded cases afford scant material to work upon.

The leading characters of the growths removed will have been gathered from the descriptions of the operations. In all there was one large thick-walled main cyst, occupying one side of the abdomen, embedded in the broad ligament and sessile on the uterus. In all, also, there were several subsidiary cysts, most of them thin-walled, with thin clear or bloody fluid, some of them purulent, and in the third case two of them containing papillomatous growths. In no one was there the slightest vestige of a pedicle. In the first and second cases the large cysts were about half filled with papillomatous material; in the third case there was papillomatous growth in two small cysts as well as in the large one, but only in small amount, perhaps filling one-fourth to one-sixth of the cavity. In the first case the position of Fallopian tube and ovary is not mentioned in my notes, and the tumour was destroyed. In the second case the Fallopian tube, much enlarged, was spread out on the anterior surface of the main cyst, and the ovary, much atrophied, lay on the cyst-wall above the tube. In the third case the ovary was distinctly made out in the tumour-wall, and the tube was a prominent object over the top of the large cyst.

I shall now summarise such clinical features as, being in harmony with pathological facts, may fairly be regarded as worthy of trust in leading to a diagnosis.

1. In their growth the tumours are markedly asymmetrical. Springing as they do from the broad ligament, and having no

pedicle to permit their escape from the pelvis, they are fixed down on one side and cannot, when large, rise to the position of least pressure in the middle of the abdomen. Minor cysts bulge out where they can find room in the pelvis or on the side not occupied by the main cyst; but their aggregate bulk and arrangement is not such as to produce a balancing symmetry. Cases of ovarian disease are rarely so persistently one-sided and so irregular in shape as these, and they are not so deeply nor so firmly attached in the pelvis. With the rare fibro-cystic disease of the uterus, so far as the few recorded cases show, cystic disease of the broad ligaments is less likely to be confounded.

2. Another peculiarity would seem to be the multiplicity of cystic growths. It is not merely a multi-locular cyst, one large cyst divided by septa into several; it is a development of several separate cysts, each sessile on a common base. This peculiarity is more marked in my cases than in those shortly related by Mr. Doran. In each was found one major cyst, and in each this cyst, from its papillomatous contents, appeared to fluctuate less freely than its companions. The others were crowded into the pelvis occupying Douglas's pouch and into the side of the abdomen unoccupied by the large cyst. Their walls were thin, and fluctuation was usually plainly to be elicited.

3. A third peculiarity of papillomatous disease of the broad ligaments is its immobility. From the very beginning and all through its progress it is absolutely immovable, in its deeper parts at least, to such force as can safely be applied. In the pelvis through the vagina this sensation of resistance was peculiarly unyielding. It is doubly fixed by the broad ligament in which it mainly lies, and by the minor cysts packed in the pelvis which spring from it.

4. A fourth point is enlargement and elevation of the uterus. In my third case the uterus was drawn up out of reach, in the others it was elevated, in all it was much enlarged. That the uterus should be enlarged is readily conceivable from its close physical and vascular connection with the very vascular growth. That it should be elevated is a necessary consequence of the direction of the tumour's growth and of the attachment of the uterus to it. This enlargement was in excess of what is at all common in ovarian cystoma, even when adherent to the uterus. The situation of the uterus in these cases was midway between the cystic growths bulging over it, and placing it at the bottom of a sulcus visible through the abdominal walls; but it is conceivable that it might be completely overlapped in front and pushed backwards, or *vice versa*. If a sound introduced into the bladder showed elevation of that viscus, we should look upon it merely as a sequence of elevation of the uterus.

5. As a corollary from preceding propositions, we might infer

physical interference with the processes of defæcation and micturition. The growth, being fixed in the pelvis, and there undergoing enlargement, of necessity presses upon the hollow viscera. In the third case frequency of micturition was the most prominent symptom; in the other two it was marked enough to require special comment in my notes. In the third case, also, as might be expected, the difficulties in defæcation were most urgent. A curious feature in her case was that she could defæcate only when standing, probably because the sitting posture forced the growth downwards into the pelvis.

6. It would seem that papillomatous cysts everywhere are peculiarly liable to undergo rupture. In the second case there was an extraordinary and perhaps unique history of rupture on at least twelve occasions. In the first and third acute symptoms existed on several occasions which were compatible with rupture. Mr. Doran comments on this tendency of papillomatous cysts to burst, and lays particular stress on the clinical importance of this fact in reference to the likely result of general infection of the peritoneum. In my cases I think that any rupture which took place was not of the large papilloma-bearing cysts, but of the small thin-walled cysts not containing papilloma. Several puckered cicatrices in the sulci between these small cysts, which were observed after removal of the growths in two of the cases, lend probability to this view. Mere leakage through a small opening without the formation of a large rent, as it is pathologically the most common mode of escape of the fluid contents, would not produce very acute clinical signs. If the rupture is not of a large cyst, we should not expect much diminution in the size of the abdomen, nor marked relaxation in the tension of its walls.—*Annals of Surgery*, Dec. 1885, p. 446.

111.—ON THE TREATMENT OF PELVIC ABSCESS IN WOMEN BY INCISION AND DRAINAGE.

By P. F. MUNDE, M.D., New York.

Inflammations of the pelvic peritoneum and cellular tissue constitute, according to some authors, the most common but one of the diseases peculiar to women, the exception being cervical endometritis. There can be no doubt that this statement, if not absolutely true, is very nearly so. A small proportion only, however, end in suppuration. This may, however, be more common than is generally laid down in text-books. A moderate quantity of pus may easily be passed unnoticed from the rectum, bladder, or vagina. In the majority of such cases the abscess closes spontaneously. In not a few, however, a chronic discharging sinus persists for months or years, and may kill the patient. Hence the importance of the subject, in the treatment of which Dr. Mundé, however, did not lay claim to anything new. He believes that abscess far more often

follows cellulitis than peritonitis. He gave the histories of ten cases, formulating the following conclusions:—

1. Pelvic abscess in the female is not very common, in proportion to the great frequency of pelvic exudation, and probably does not occur in more than ten per cent. of all cases, the majority of exudations terminating in spontaneous absorption.

2. Pelvic abscess may be either extra-peritoneal, the result of cellulitis (by far the most common variety), or intra-peritoneal, the consequence of pelvic peritonitis. If intra-peritoneal, the adhesive inflammation between pelvic viscera and intestines may so seal the abscess-cavity as to render it *practically* extra-peritoneal. Abscess of the ovary and pyo-salpinx do not belong to the category of "pelvic abscess" proper, and do not fall under the same therapeutic rules, unless when, by agglutination to the abdominal wall or to Douglas's pouch, they become virtually extra-peritoneal.

3. Small, deep-seated pelvic abscesses, not exceeding a capacity of two ounces, and minute multiple abscesses in the cellular tissue, can often be permanently cured by evacuating the pus thoroughly with the aspirator. The surrounding exudation is then rapidly absorbed.

4. About one-half of the abscesses open spontaneously into the vagina, rectum, bladder, or through the abdominal wall and ischiatic fossa. These cases may gradually recover without treatment, or the sinuses may persist until closed by surgical interference.

5. Abscesses containing more than two ounces of pus should be opened by free incision along an exploring needle or grooved director, cleared of débris by finger or blunt curette, and drained and irrigated, if necessary, through the drainage-tube.

6. This incision should be made where the pus points most distinctly, which is usually the vaginal vault.

7. In a certain number of cases the pus points through the abdominal wall, generally in the iliac fossa, and the incision should then be ample and free drainage secured.

8. When the pus has burrowed deep into the pelvic cavity, and a probe can be passed from the abdominal incision down to the vaginal roof, mere abdomino-cutaneous drainage will not suffice, and a counter-opening must be made in the vagina, and a drainage-tube carried through from the abdominal wound into the vagina. This drainage-tube may have to be worn for months. In making this incision, care should be taken not to wound the bladder.

9. The opening of a pelvic abscess which points through the abdominal wall, does not differ from, and is no more dangerous than, the same operation elsewhere on the cutaneous surface of the body. It is not an "abdominal section" or a "laparotomy" in the sense that those terms are used to indicate the surgical opening of the peritoneal cavity.

10. Chronic pelvic abscesses, which have burst spontaneously and have discharged through the vagina, rectum, or elsewhere for

months or years, are exceedingly difficult to cure. This is particularly the case when the opening is high up in the rectum. A counter-opening in the vagina, or enlarging the opening if there situated, the curette, stimulant irrigation, etc., may occasionally succeed, but usually fail.

11. A perityphilitic abscess may point through the abdominal wall, and simulate a pelvic abscess proper. Aspiration will settle the diagnosis; the treatment is the same.

12. The majority of cases of pelvic abscess recover, at least the mortality is small.—*Canada Med. and Surg. Journal*, Feb. p. 405.

112.—ON PELVIC HÆMATOCELE.

By the late ANGUS MACDONALD, M.D., F.R.S.E., Edinburgh.

[The following remarks were made upon three cases of retro-uterine hæmatocele, recently under the care of the author, in the Royal Infirmary, of which he gives the narratives in the paper from which the excerpt is taken. In two of the cases part of the extravasated fluid was passed by the rectum.]

The mere fact that in a clinique numbering at most not more than 13 or 14 beds there should have been at one time three undoubted cases of retro-uterine hæmatocele is a very peculiar circumstance. According to Schroeder, Hart, and Barbour, &c., the frequency of this accident in relation to all other female affections is set down at 7 per cent.

My opinion, from increasing experience, leans rather to the conclusion that this estimate is too low. Of course, much depends on the view taken of the leading symptoms, whether one regards a case of hæmatocele as such, or as an example of intrapelvic inflammation. Considering the evidence given in the above records, it seems to me impossible to doubt the correctness of our diagnosis in any of them. As the second and third burst into the bowel, giving rise to discharge of blood per anum, accompanied with consecutive diminution in bulk of the tumour, the most sceptical observer must agree that these were cases of hæmatocele. The evidence in all of the three cases was, to my mind, insuperable, else I would not have come to the diagnosis arrived at. It was on the face of probabilities so very unlikely.

When we have a rapidly forming elastic tumour in the back part of the pelvis displacing the uterus forwards, at first unaccompanied with increase of temperature, but associated with symptoms of acute anæmia, it is impossible to arrive at any other conclusion regarding it. In all these cases the symptoms were very well marked, as can be proved on reference to the record.

As to the causation, nothing definite can be deduced from the history of our cases. Possibly in case 3 the cause of the hemorrhage was due to the bursting of an early extrauterine foetation.

This view is further supported by the great persistency of the retro-uterine lump.

It is worthy of notice that retention of urine is a leading feature in the third case, although many authorities say this accident does not frequently occur in connection with retro-uterine hæmatocele. I am inclined to doubt the correctness of this assertion, as I have hitherto found it a frequent symptom in the cases that have come under my own observation.

The second case presented ultimately the most grave symptoms, and I at one time thought of opening the abdomen and emptying the sac, as Mr. Lawson Tait recommends. But it spontaneously emptied itself into the bowel, after which the case progressed favourably.

The treatment of these cases, if we do not open and empty the sac—and that appears to me warrantable only in case the mass suppurates and threatens the patient with death through infection—is to let well alone. They should, if possible, never be aspirated, as that may lead to fresh flow of blood. Still less ought they to be incised freely, as thereby sepsis may be added to other risks.

Relief from pain, if not also partial arrest of bleeding, is effected by the use of the ice-bag. Rest, quiet, and time, with attention to keep the bowels from being overloaded, will do the rest. —*Edinburgh Medical Journal*, Nov. 1885, p. 415.

113.—ON PUERPERAL SEPTICÆMIA AND ITS TREATMENT.

By A. H. FREELAND BARBOUR, M.D., Assistant to the Professor of Diseases of Women in Edinburgh University.

To comprehend fully the present condition of our knowledge of puerperal septicæmia, we must go back to the suggestive paper by Sir James Y. Simpson, "On the Analogy between Surgical and Puerperal Fever." More recent scientific investigation has worked along the lines of this analogy, and the results have proved that it rests on a sound pathological basis. These results promise to carry us further, and establish not only analogy but identity.

The next important step was the discovery by Pasteur in 1857 of the lactic-acid ferment, which gave birth to the germ theory of disease. This theory found in the hands of Sir Joseph Lister its most fruitful application to surgery, and it was only one step further to carry it into the province of obstetrics. Nothing is more remarkable than the eagerness with which practical obstetricians have seized hold of the principles of antiseptic treatment laid down by Lister; the only misfortune is that our treatment has shot so far ahead of our pathological data that we may expect a reaction similar to what has occurred in the province of surgery. These data are, however, being slowly accumulated, mainly through the work of Pasteur and those who work under him.

Although we must wait for further investigation to determine the exact relation of germs to septic poisoning, there has been established the very important facts that we *have the same pathological changes in puerperal as in surgical septicæmia, and that these hold exactly the same relation to the germ theory.* In most cases of puerperal fever we have simply to do with blood poisoning from unhealthy wounds, identical in pathology with the blood poisoning from an unhealthy condition of the wound after an amputation. The constitutional symptoms are, of course, modified by the puerperal condition, just as the local changes are affected by the peculiarities in the anatomical structure of the post-partum uterus—the condition of the tissues lining its cavity, its enlarged veins and lymphatics, and its hypertrophied parametric tissue. In a former paper I described the normal condition of the tissues in the post-partum uterus, and here we need only point out what a favourable soil the breaking down tissues of the placental site offer for the growth of micro-organisms, and how the removal of the epithelial covering from the whole of the interior of the uterus and cervix uteri favours septic absorption. That septic poisoning does not oftener occur is probably due to accurate apposition of the anterior and posterior vaginal walls (following the expulsion of the uterine contents), which prevents the entrance of germ-laden air, and also retards the growth of those organisms which, as Pasteur has shown, require air for their development. The fact that the epithelium of the vagina is not detached by the passage of the child is significant, as this will prevent septic absorption from taking place through its walls except when lacerated.

The practical conclusion from the foregoing is *that the condition of the interior of the uterus should occupy the same place in the mind of the obstetrician that the stump does in the mind of the surgeon.* The condition of the lochia gives valuable information as to the state of the uterine wound. We must remember, however, that we may have septic absorption going on without fœtor of the lochia, as we have seen in one case. We must distinguish between putrefying matter (which will, of course, produce fœtor) and septic matter: *all putrefaction within the uterus after delivery will cause septic poisoning, but not all septic poisoning implies putrefaction.* We have a pathological basis for this distinction in the difference between the microbes characteristic of putrefaction and those described in septicæmia.

The germ theory receives confirmation from the fact that those substances which have been shown to be most effective in destroying micro-organisms have proved most useful in treating septicæmia. It is established beyond question that the washing out of the uterus with antiseptics in cases of puerperal fever is followed by the most remarkable results. Till recent years carbolic acid was the favourite antiseptic, but corrosive sublimate possesses so many

advantages that it is gradually replacing it. Koch's experiments have shown that the latter is much more destructive to microbes. The spores of anthrax bacillus would still grow after immersion for seven days in a 2 per cent. solution of carbolic acid, as also they did after immersion for a day in a 5 per cent. (1·20) solution. But after immersion in a solution of 1-10,000 of corrosive sublimate for from 5 to 60 minutes, the same spores become sterile; in fact, immersion for ten minutes in solutions up to 1-20,000 also sterilised the spores. He places the limit of the action of the sublimate on the spores of anthrax bacillus as lying somewhere between a 1-20,000 and a 1-50,000 solution. His experiments on mice were very interesting. Three spore-laden threads were dipped for ten minutes in solutions of 1-10,000, 1-20,000, 1-50,000 respectively, and then introduced beneath the skin of different mice. The 1-50,000 mouse died next day, as rapidly as if the spores had been fresh. The 1-20,000 one died on the fourth, the 1-10,000 on the fifth day. These last showed, therefore, an extraordinary prolongation of the period of incubation which may fairly be attributed to the action of the sublimate. The same experiment was repeated with the difference that the spores lay for one hour instead of ten minutes in the solutions. The 1-50,000 mouse died in forty hours; the 1-20,000 mouse died in three and a half days; the 1-10,000 mouse survived. "Sublimate is, therefore, the only one of all recognised antiseptics which possesses the very important peculiarity, that it kills by a single application of a comparatively weak (1-1000) solution for a few minutes all, even the most resistant, spores of micro-organisms; even with a solution of 1-5000, a single dipping was sufficient."

Another advantage of the corrosive sublimate is its portability. Owing to its solubility in the presence of chloride of ammonium, we can have a very concentrated solution. At Dr. Hart's suggestion, Messrs. Duncan and Flockhart have prepared a solution of 16 per cent.; so that one drachm added to a quart of water gives a solution of 1 in 2000, which is an efficient antiseptic. It is made up in special bottles provided with a glass cup of one drachm capacity fixed to the cork. Those engaged in obstetric practice will find it a great convenience, as it can easily be carried, and can also be ordered for use by the nurse where it is desirable to have antiseptic injections given daily during the puerperium. A great deal has been said against corrosive sublimate owing to toxic effects which have followed in a few cases. Koch has, however, pointed out that its action on germs is so rapid that long immersion is not necessary. The practical application of this is that in cases where we might be afraid of too much absorption of the sublimate an injection of water might be given immediately after the antiseptic one without diminishing the effect of the latter. After a vaginal injection given in the dorsal posture, a considerable quantity

of fluid may remain in the vagina so long as the patient remains in that posture. This fact and the lacerated condition of the cervix may explain the absorption with toxic results which has sometimes been observed. The 1 to 2000 solution is now widely used in this country, and we have never heard of any bad effects.—*Edinburgh Medical Journal*, Nov. 1885, p. 441.

114.—ON THE RESUSCITATION OF APPARENTLY DEAD-BORN CHILDREN BY DR. SCHULTZE'S METHOD.

By Dr. WM. L. REID, President of the Glasgow Obstetrical and Gynæcological Society.

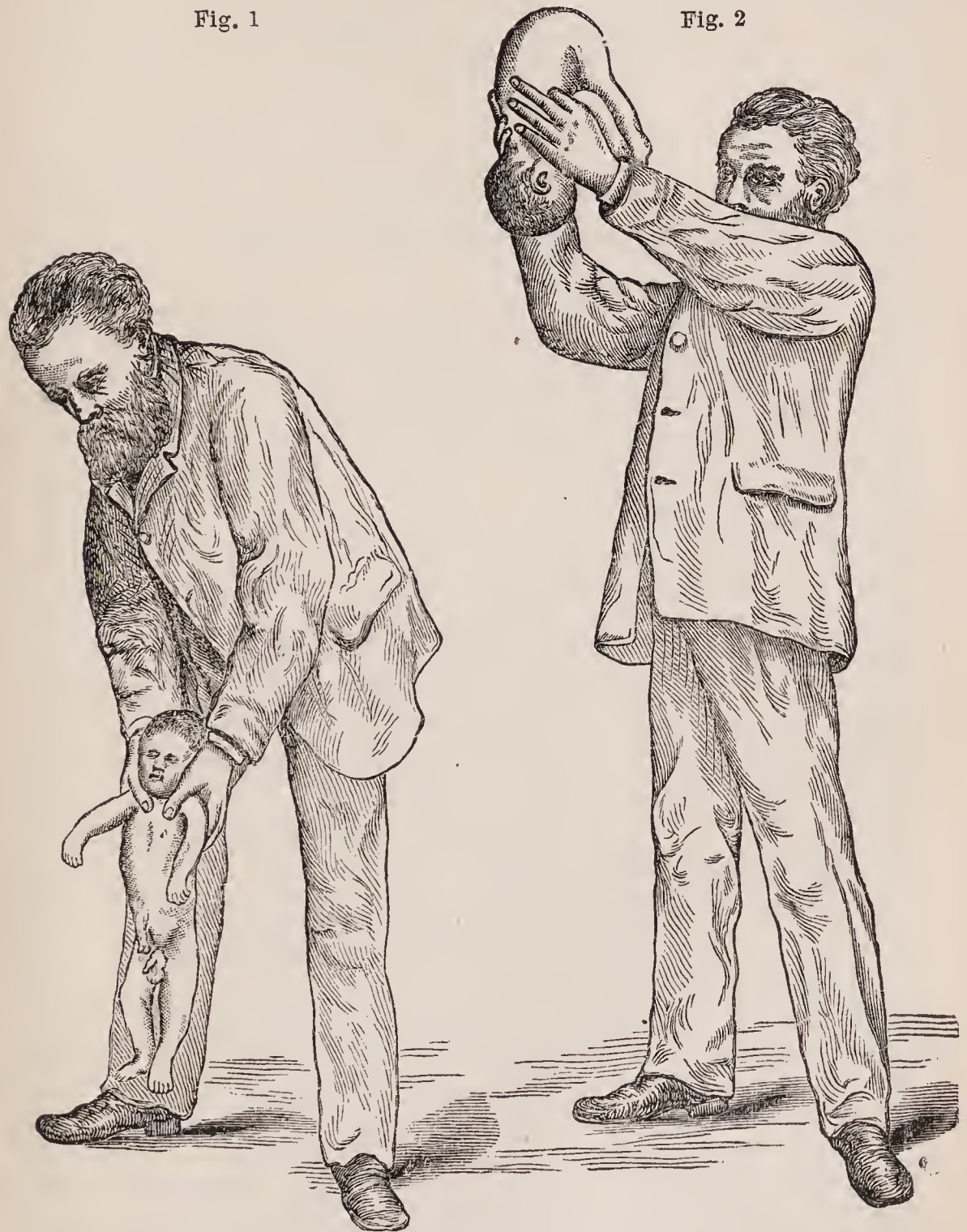
[Dr. Reid, after referring to the eight methods previously in use (viz., Marshall Hall, 1856; Howard, 1877; Silvester, 1858; Pacini, 1867; Bain, 1868; Schücking, 1877; Schüller, 1879; Schroeder, 1874), says:—"Seven years ago I had the advantage of hearing Dr. B. S. Schultze, Professor of Midwifery in Jena, explain his method, and since that time have practised it, certainly with better results than I formerly obtained by Silvester's plan. Given, then, the birth of an apparently dead-born child, how ought we to proceed with its treatment? Personally, I believe in hanging it up by the heels with one hand, and clearing out its mouth and throat with the forefinger of the other. If this, followed by sharp whipping of the buttocks with the loosely hanging fingers, does not excite inspiration, I proceed at once with Schultze's method."]

Let me now attempt to give you a clear idea of this method. The child is to be suspended a few inches from the floor, by the two index fingers placed in the axillæ from behind, the thumbs lying loosely over the front of the thorax, and the other fingers spread also loosely over the thorax behind, the head being supported against the edges of the ulnar bones. (Fig. 1.) Without delay, in this position, the child is swung sharply upwards, until the operator's arms are extended horizontally, then the upward movement is continued more gently so as to bring the legs slowly past the perpendicular and allow them to sink quietly against the front of the child's body. (Fig. 2.) The weight of the latter is now supported by the thumbs in front of the thorax, and the chest pressed on all round by the fingers, and its arms laid against its sides. This compression through the diaphragm below, and the fingers all round, causes aspirated fluids to flow freely from the mouth and nose. After being retained in this position a few seconds, the body is swung smartly down again into its former position, taking care that now there is no compression of the chest, either before or behind, but simply a suspension of the child on the index fingers. (Fig. 1.) During this movement the contents of the abdomen, partly by gravity, and partly by centrifugal force, fly away from the diaphragm, and, dragging it down, enlarge the chest from below

At the same time the arms are separated from the sides, and by their muscular attachments drag the ribs upwards, and in this way air is sharply drawn into the lungs. These movements are continued

Fig. 1

Fig. 2



every four or five seconds, unless when a considerable quantity of fluid continues to come from the mouth and nose, when the movement of expiration is on that account prolonged.”—*Glasgow Medical Journal*, Nov. 1885, p. 348.

INDEX TO VOL. XCIII.

	PAGE.
Abscess, mammary, Dr. Edis on the prevention of	119
———of the hip-joint, Mr. Owen on the treatment of	235
———pelvic, Dr. Munde on treatment by incision and drainage ...	408
Acetonæmia, Dr. Pavy on	62
Acne, Dr. Brooke on Unna's treatment of	91
——— rosacea, Dr. Brooke on Unna's treatment of	91
Acupuncture in certain forms of chronic rheumatism, Dr. Lorimer on ...	121
Acute coryza, Dr. Gray on the use of atropia in	39
———necrosis, Mr. Pitts on subperiosteal resection in	75
Adams, Mr. W., on congenital dislocation of the hip	240
Adenoid disease of naso-pharynx, Mr. Butlin on its treatment	272
———vegetations of the naso-pharynx, Mr. Butlin on	269
Adonis vernalis in heart disease, Prof. Cervello on	33
Ague, Dr. Bonavia on its treatment by decoction of lemon	131
Air-embolism, Dr. Senn on	197
Albuminometry, Mr. Blomfield on the use of Esbach's tubes for... ..	63
Albuminuria in the apparently healthy, (cyclic), Dr. Pavy on	217
———scarlatinal, Dr. Gairdner on	8
Alcoholic paralysis, Dr. Hadden on six cases of	9
———peripheral neuritis, Dr. Buzzard on	149
Alcoholism, acute, Dr. Josham on hypodermic injection of pilocarpin in ...	9
Alum whey and malt extract in enteric fever, Dr. Duckworth on	3
Amputations, Dr. Duncan's operation for re-infusion of blood in	221
———at the knee-joint by disarticulation, Mr. Bryant on	76
Amyotrophic lateral sclerosis, Dr. Beavor on a case of	12
Anæsthesia, local, Dr. Landerer on subcutaneous injection of cocaine for ...	15
Aneurism, Prof. Annandale on compression of the innominate in... ..	260
———axillary, Mr. May on ligature of subclavian artery for... ..	265
———popliteal, Prof. Annandale on the old operation in	257
———thoracic, Dr. Cayley on introduction of steel wire into the sac ...	38
Angular curvature of spine, Mr. Walsham on surgical and æsthetic advantages of poroplastic jackets	78
Annandale, Prof. T., his procedure for removing small calculi in male children	308
———on compression of the innominate artery	260
———on treatment of popliteal aneurism by the old operation	257
Anteflexion of uterus, Dr. Goodell on its clinical significance	396
Anthrax, internal, Mr. Poland on a case of	4
Antipyretic, Dr. Aitkin on the subcutaneous injection of quinine as an ...	6
Antiseptic dressing, Mr. John Wood on peroxide of hydrogen as an ...	78
Arsenic, Dr. Caton on its use in the treatment of chorea	177
———Dr. Cheadle on its use in the treatment of chorea	173
Artery, innominate, Prof. Annandale on compression of the	260
———subclavian, Mr. May on its ligature for axillary aneurism... ..	265
Arthritis, rheumatoid, Dr. Spender on its clinical features	122
———rheumatoid, Dr. Spender on its early treatment	125
Artificial vitreous body, Dr. Mules on surgical and æsthetic advantages of... ..	366
Ascites, Dr. Duffey on a milky fluid met with in	1
Ashby, Dr. H., on the causes of death in scarlet fever	128
Asphyxia of new-born children, Dr. Reid on Schultze's method of treating ...	416
Asthma and hay-fever, Sir Andrew Clark on	203
———of fatty heart, Prof. Cantani on the	31
Astragaloid osteotomy for flat-foot, Prof. Stokes on	245
Atrophy of the optic nerve, Mr. Benson on its causes	361

	PAGE.
<i>Barbour</i> , Dr. A. H. F., on puerperal septicaemia and its treatment ...	411
<i>Benson</i> , Mr. A. H., on the causes of atrophy of the optic nerve ...	361
<i>Berry</i> , Mr. W., on promotion of union by first intention ...	255
<i>Bladder</i> , Mr. Howlett on continuous drainage by post-prostatic puncture ...	316
<i>Bonavia</i> , Dr. E., on decoction of lemon in ague and enlarged spleen ...	131
<i>Boro-glyceride</i> , Dr. Duckworth on its use in pruritus ...	96
<i>Bougies</i> , grooved, in the treatment of gonorrhœa, Dr. Caspar on ...	331
<i>Bright's disease</i> , Dr. Flint on the elements of prognosis in ...	65
<i>Broadbent</i> , Dr. W. H., on mitral stenosis and its treatment ...	186, 188
<i>Broad ligaments</i> , Mr. Smith on papillomatous cystic disease of the ...	405
<i>Bromide of potassium</i> in catarrh, Dr. Lees on ...	206
<i>Bronchial asthma</i> , Sir A. Clark on the theory of ...	203
<i>Brooke</i> , Dr. H. G., on topical applications in skin diseases ...	321
<i>Brow presentations</i> , M. Devars on delivery in ...	394
<i>Butlin</i> , Mr. H. T., on adenoid disease of naso-pharynx and its treatment ...	269, 272
<i>Buzzard</i> , Dr. T., his Harveian lectures on peripheral neuritis ...	142—159
<i>Calculi</i> in male children, Prof. Annandale's new procedure for removing ...	308
<i>Calculus</i> of female bladder of large size, Dr. Macan on removal of ...	66
<i>Cancer</i> , œsophageal, Mr. Chavasse on gastrostomy for ...	284
<i>Cannabis Indica</i> as a narcotic, Dr. Lewis Jones on ...	12
<i>Caspar</i> , Dr. L., on treating gonorrhœa by means of grooved bougies ...	331
<i>Cataract operations</i> , Mr. Hewetson on eucalyptus-air in ...	111
<i>Catarrh</i> , Dr. Lees on the neurotic treatment of ...	206
<i>Catheterism</i> in urethral fever, Dr. Kinloch on death from ...	300
<i>Caton</i> , Dr. R., on the treatment of chorea ...	176
<i>Cervical angular curvature</i> , Mr. Walsham's poroplastic jacket and collar for ...	230
——— collar for spinal disease, Mr. Clark on a ...	227
——— collar for spinal disease, Mr. Owen on a ...	225
——— stenosis, Dr. Goodell on its treatment by forcible dilatation ...	116
<i>Chavasse</i> , Mr. J. F., on gastrostomy for œsophageal cancer ...	284
<i>Cheadle</i> , Dr. W. B., on arsenic in the treatment of chorea ...	173
——— on the treatment of heart-disease in children ...	198
<i>Chiene</i> , Prof. J., on the application of trusses in hernia ...	279
<i>Cholecystotomy</i> , Mr. Robson on two successful cases of ...	45
<i>Chorea</i> , Dr. Caton on the treatment of ...	176
——— Dr. Cheadle on heart affection in ...	13
——— Dr. Cheadle on its treatment, especially by arsenic ...	173
<i>Chloride of methyl spray</i> , Dr. Debove's treatment of sciatica by ...	25
——— of methyl spray in neuralgia, Vinay on ...	19
<i>Chronic gouty finger</i> , Dr. Spender's treatment of ...	92
——— sprain, Mr. Moullin on ...	253
<i>Clark</i> , Mr. H. E., on a support for the head in disease of cervical spine ...	227
<i>Clark</i> , Sir A., on the theory of bronchial asthma ...	203
<i>Clutton</i> , Mr. H. H., on symmetrical synovitis of knee in hereditary syphilis ...	356
<i>Cocaine</i> , Dr. Da Costa on its use in hay fever ...	41
——— Dr. Landerer on subcutaneous injection of for local anæsthesia ...	15
——— poisoning, Editor of <i>Lancet</i> on ...	170
<i>Colotomy</i> in rectal disease, Dr. Kelsey on the limitations of ...	296
<i>Compression</i> of innominate artery, Prof. Annandale on ...	260
<i>Conical cornea</i> , Mr. Higgins on its treatment by operation ...	107
<i>Conjunctivitis</i> , Dr. Bieloff on its treatment by corrosive sublimate ...	108
<i>Contracted pelvic brim</i> , Dr. Sloan on obstructed labour from ...	117
<i>Cornea and lens</i> , Mr. Hartridge on a simple method of examining by ophthalmoscope ...	371
<i>Corrosive sublimate</i> , Dr. Barbour on its use in puerperal septicaemia ...	413
<i>Coryza</i> , acute, Dr. Gray on the use of atropia in ...	39
<i>Curare</i> in the treatment of acute traumatic tetanus, Mr. M'Ardle on ...	177
<i>Cyclic albuminuria</i> , Dr. Pavy on several cases of ..	217
<i>Cystic disease</i> of the broad ligaments, papillomatous, Mr. Smith on ...	405
<i>Cysticercus</i> of anterior chamber, Mr. Williams' case of ...	372
<i>Deliriums</i> , diagnostic, Dr. Richardson on ...	34, 171
<i>Delivery</i> in brow presentations, M. Devars on ...	394
<i>Diabetes insipidus</i> combined with diabetes mellitus, Dr. Pavy on...	66

	PAGE.
Diabetic retinitis, Mr. Nettleship's case of	109
Dietetic treatment of megrim, Dr. Haig on the	180
Digitalis, Dr. Broadbent on its use in mitral disease	36
— group, Dr. Fraser on the therapeutics of the	32
Dilatation of cervix for sterility & dysmenorrhœa, Dr. Goodell on results ...	398
Diphtheria, Dr. Powell on a case of Raynaud's disease following	213
Diphtheritic paralysis, Dr. Buzzard on peripheral neuritis as the cause of ...	154
— paralysis, Dr. Gowers on the tendon reflexes in	16
Dislocation of the hip, congenital, Mr. Adams on	240
<i>Dreschfeld</i> , Dr. J., on syphilitic stricture of the trachea	334
Dropsy, Dr. Broadbent on its occurrence in mitral stenosis	186
<i>Duckworth</i> , Dr. D., on enteric fever and its treatment	2, 3
— on spinal paralysis in the adult	132
<i>Duncan</i> , Dr. J., on re-infusion of blood in amputations	221
— on the treatment of nævus by electrolysis	323
Dysmenorrhœa, Dr. Goodell on forcible dilatation in cervical stenosis	116
— Dr. Goodell on results of forcible dilatation of the cervix	398
Ear, Dr. Barr's treatment of purulent disease of middle ear	110
— Dr. Pierce on Ménière's disease of the	379
— Mr. Field on removing osseous tumours from the	376
— disease, Dr. Woakes on syphilis as a factor in	374
— disease in diphtheria and scarlet fever, Dr. T. Barr on	109
Elbow, obscure sprains of in children, Mr. Hutchinson, jun., on	251
Electrolysis, Dr. Duncan on the treatment of nævus by	323
— Mr. Smith on removing superfluous hairs by	326
Embolism, air, Dr. Senn on	197
Emmet's operation for uterine laceration, Dr. Hewitt on... ..	382
<i>Emmet</i> , Dr. T. A., on laceration of the perineum... ..	390
— on recent laceration of cervix uteri and its treatment	387
Empyema, Mr. Godlee on excising portions of ribs in	275
Enteric fever, Dr. Duckworth on alum whey and malt extract in	3
— Dr. Duckworth on parotid abscess in	3
— Dr. Duckworth on the occurrence of hæmaturia in	2
— Dr. Duckworth on the occurrence of green stools in	2
Enucleation of the eye contrasted with evisceration, Dr. Mules on	369
Epiphysis of metacarpal bone of thumb, Mr. Lucas on separation of	233
Esbach's tubes for albuminometry, Mr. Blomfield on the use of	63
Estlander's operation in empyema, Mr. Godlee on	275
Eucalyptus air in cataract operations, Mr. Bendelack Hewetson on	111
Excision of hip, Dr. Yale on indications for and results of	237
— knee-joint, Mr. McGill on	241
— rectum, Dr. Macleod on the indications for	55
Extravasation of urine, Mr. T. Jones on Cock's operation for	68
Eye, Mr. Williams' case of cysticercus of anterior chamber of	372
Fatty heart, Prof. Cantani on asthma of the	31
Fæcal accumulation, Mr. Treves on	287
— Mr. Treves on the treatment of	49
— Mr. Treves on the use of massage in	50
Feeding by a nasal tube after tracheotomy, &c., Mr. Buller on	44
Fever, enteric, Dr. Duckworth on, and its treatment	2, 3
— hay, Dr. Da Costa on the use of cocaine in	41
— scarlet, Dr. Ashby on the causes of death in	128
— scarlet, Dr. Ashby on hemorrhage from large vessels of neck in	7
Fevers, Dr. Money on reflex actions, knee-jerks, &c., in	138
<i>Field</i> , Mr. G. P., on removal of osseous tumours from the ear	376
Flat-foot, Prof. Stokes on astragaloid osteotomy for	245
— Prof. Stokes on its causes and treatment	82
Forceps, Dr. Madden on their more frequent employment	393
— Dr. Madden on axis-traction forceps	116
<i>Flint</i> , Dr. A., on the mitral murmurs	191—196
Fracture of arm with injury to nerves, Mr. T. Jones on	82
— condyles of humerus, Dr. S. W. Smith on	83

	PAGE.
Fracture of thigh in children, Mr. Hope on use of "Steadle splint" for ...	84
<i>Fraser</i> , Dr. T. R., on strophanthus in heart-disease ...	32, 200
Freckles, Heitzmann's and Hardaway's treatment of ...	91
Functional disease of the nervous system, Dr. Gowers on ...	16
Furunculosis, Dr. Brooke on the treatment of ...	92
Gall-bladder, distended, Mr. Wheelhouse on the treatment of ...	281
Gangrene, hospital, Prof. Hutchinson on syphilis as a cause of ...	336
———— symmetrical, or Raynaud's disease, Dr. Bernstein's case of ...	24
———— symmetrical, or Raynaud's disease, Mr. Hyde's case of ...	213
Gastrostomy for œsophageal cancer, Mr. Chavasse on ...	284
<i>Godlee</i> , Mr. R. J., on excision of portions of ribs in empyema ...	275
Gonorrhœa, Dr. Caspar on its treatment by grooved bougies ...	331
———— syphilis, Prof. Hutchinson on ...	100
Gonorrhœal rheumatism, Dr. Fraser on treatment of ...	100
<i>Goodell</i> , Dr. W., on clinical significance of antelexion of uterus ...	396
———— on results of forcible dilatation of cervix for sterility and dysmenorrhœa ...	398
Gouty finger, chronic, Dr. Spender's treatment of ...	92
———— nails, Dr. Fothergill on ..	93
<i>Gowers</i> , Dr. W. R., on the diagnostic value of tendon-reflexes ...	134, 136
<i>Green</i> , Mr. F. K., simple method of treating spurious valgus in the female ...	249
Gunshot wounds of knee, Sir W. MacCormack on ...	85
<i>Habershon</i> , Dr. S. H., on the after-treatment of tracheotomy ...	215
<i>Haig</i> , Dr. A., on megrim of gouty origin, and its treatment ...	180
Hairs, superfluous, Mr. Smith on the use of electrolysis for removing ...	326
<i>Harrison</i> , Mr. R., on the causation and nature of prostatic hypertrophy ...	310
———— on tunnelling the enlarged prostate ...	314
<i>Hartridge</i> , Mr. G., on a simple method of examining cornea and lens by the ophthalmoscope ...	371
Hay fever, Dr. Da Costa on the use of cocaine in ...	41
———— and spasmodic asthma, Sir A. Clark on ...	203
Heart affection in chorea, Dr. Cheadle on the ...	13
———— disease, Dr. Fraser on strophanthus in ...	200
———— Prof. Cervello on adonis vernalis in ...	33
———— Dr. Richardson on the deliriums of ...	34
———— in children, Dr. Cheadle on the treatment of ...	198
———— in children, Dr. Cheadle on the rheumatic origin of ...	34
Hematemesis neonatorum, Dr. Sawtell's case of ...	51
Hematocle, pelvic, Dr. Angus Macdonald on ...	410
Hemoptysis, profuse, Dr. West on the treatment of ...	42
Hemorrhagic amblyopia cured by dilatation of sphincter ani, Mr. Hartley ...	113
Hernia, Prof. Chiene on the application of trusses in ...	279
———— strangulated, Mr. Clement Lucas on removal of sac in ...	57
———— strangulated umbilical, Mr. Clement Lucas's treatment of two cases ...	58
———— strangulated, Mr. Rivington on treatment of sac in ...	55
<i>Hewitt</i> , Dr. G., on laceration of os and cervix uteri and Emmet's operation ...	382
Hip-disease, Mr. Wright on suppuration in ...	234
Hip-joint, Dr. Yale on indications for and results of excision of ...	237
———— Mr. Adams on congenital dislocation of the ...	240
———— abscess, Mr. Owen on the treatment of ...	235
<i>Howlett</i> , Mr. E. H., on continuous drainage of bladder by post-prostatic puncture ...	316
<i>Hutchinson</i> , Prof. J., on moot points in syphilis and its treatment... ..	336—352
<i>Hutchinson</i> , Mr. J. jun., on obscure sprains of the elbow in children ...	251
Hydrophobia, Editor of <i>Lancet</i> on M. Pasteur's cases of ...	4
Hyper-tonic paresis, Dr. Hughes Bennett on ...	17
Hypertrophy of prostate, Mr. Harrison on its causation and nature ...	310
Hypnotic, Dr. Jaksch, Dr. Myrtle, and Dr. Saundby on urethan as a ...	29, 30
Hysterical paraplegia, Dr. Gowers on the deep reflexes in ...	136
Hysterectomy, Mr. Lawson Tait on a case of ...	403

	PAGE.
Iced cloths, Dr. M'Call Anderson on the application of in pyrexia	6
Innominate artery, Prof. Annandale on compression of the	260
Internal antrax, Mr. Poland on a case of	5
Intra-pulmonary injections, Dr. R. S. Smith on	209
Intra-uterine injections, mercurial, Dr. Madden on	119
Intussusception, Mr. Clement Lucas on insertion and inflation in	51
———— of jejunum of 21 months' standing, Dr. Goodhart on	52
Iodide of potassium, Prof. Keyes on its administration in milk	104
Iodoform in chronic uterine catarrh, Kugelmann on	116
Iritis, Mr. W. H. Jessop on combined use of cocaine and atropine	114
Jejunostomy, Mr. Golding-Bird's case of	53
<i>Kelsey</i> , Dr. C. B., on the limitations of colotomy in disease of the rectum	296
<i>Kintoch</i> , Dr. R. A., on urethral fever, and death from catheterism	300
Knee-jerk, Dr. Money's contrivance for readily obtaining	18
Knee-joint, Mr. Bryant on amputation by disarticulation at	76
———— Mr. McGill on excision of the	241
Labour, Dr. Berry Hart on the third stage of	119
———— delayed by obstruction at the pelvic brim, Dr. Sloan on	117
———— obstructed at the pelvic brim, Dr. Sloan's propositions for guidance in cases of	118
Laceration of cervix uteri, recent, Dr. Emmet on treating	387
———— os and cervix uteri, Dr. Graily Hewitt on	382
———— perineum, Dr. Emmet on	390
———— perineum in primiparæ, Dr. Temple on prevention of	392
<i>Lancet</i> , Editor of, on cocaine poisoning	176
Lanolin, Prof. Liebreich on its practical uses in skin diseases	328
Lead-poisoning, Dr. Oliver on	162
———— Dr. Oliver on its relation to renal disease	167
<i>Lees</i> , Dr. D. B., on the neurotic treatment of catarrh	206
Lemon-decoction in ague and enlarged spleen, Dr. Bonavia on	131
<i>Liebreich</i> , Prof. O., on practical uses of lanolin in skin diseases	328
Lithotomy, supra-pubic, Sir Henry Thompson on	71
———— supra-pubic, Sir H. Thompson on, and his method of operation	303
———— supra-pubic, Sir H. Thompson's modifications for female bladder	306
<i>Lockie</i> , Dr. S., on the treatment of pneumonia	208
<i>Lorimer</i> , Dr. G., on acupuncture in chronic rheumatism	121
<i>Lowndes</i> , Mr. F. W., his cases of sloughing ulcer of the penis	359
<i>Lucas</i> , Mr. R. C., his treatment of strangulated hernia	57, 58
———— on separation of epiphysis of metacarpal bone of thumb	233
Lung disease, Dr. Duckworth on necessity of urging expectoration in	44
Lung-tissue, Dr. Smith on treatment by injection into the	209
Lupus, Dr. Brooke on the treatment of	93
———— Dr. Stewart's report on the treatment of	327
———— due to inherited syphilis, Prof. Hutchinson on	354
———— syphilitic, Prof. Hutchinson on	344
<i>M'Arde</i> , Mr. J. S., on curare in acute traumatic tetanus	177
<i>Macleod</i> , Dr. G. H. B., on excision of rectum for malignant disease	293
<i>McGill</i> , Mr. A. F., on excision of the knee-joint	241
<i>Madden</i> , Dr. T. M., on the more frequent employment of forceps	393
———— on the axis-traction forceps	116
———— on ovarian displacements	400
Malarial affections, Dr. Aitkin on the subcutaneous injection of quinine in	6
Malformation of joints from syphilitic periostitis in infancy, Mr. Hutchinson	86
Mammary abscess, Dr. Edis on the prevention of	119
<i>May</i> , Mr. B., on ligature of subclavian for axillary aneurism	265
Megrim of gouty origin, Dr. Haig on its dietetic treatment	180
Ménière's disease of the ear, Dr. Pierce on	379
Mercurial intra-uterine injections, Dr. Madden on	119
Mercury, Prof. Hutchinson on its antidotal influence in syphilis	345

	PAGE.
Mitral diastolic murmur, Dr. Austin Flint on the	196
——— presystolic murmur, Dr. Flint on the	192
——— murmurs, regurgitant and non-regurgitant, Dr. Flint on	190
——— stenosis, Dr. Broadbent on the use of digitalis in	36
——— stenosis, Dr. Broadbent on venesection in...	188
——— stenosis, Dr. Broadbent on the occurrence of dropsy in	186
Moullin, Mr. C. W. M., on chronic sprain	253
Money, Dr. A., on reflex-actions, knee-jerks, &c., in typhoid and other fevers	138
Mules, Dr. P. H., on the advantages of the artificial vitreous body	366
Munde, Dr. P. F., on treating pelvic abscess by incision and drainage	408
Myocarditis, acute parenchymatous, Dr. West on	182
Nævus, Dr. Duncan on its treatment by electrolysis	323
——— Dr. Richardson on an improvement in treatment by sodium ethylate	94
Narcotic, Dr. Jones on cannabis indica as a	12
Naso-pharynx, Mr. Butlin on adenoid vegetations of the	269
——— Mr. Butlin on operating for adenoid disease of	272
Necrosis, acute, Mr. Bernard Pitts on subperiosteal resection in	75
Nephrectomy, Dr. Gross on its indications and counter-indications	68
——— for suppurating kidney, Mr. Bruce Clarke on	69
Nephritis, Burzkinski on the action of nitro-glycerine	69
——— as a sequela of scarlet fever, Dr. Ashby on	130
Nervous system, Dr. Gowers on functional diseases of the	16
Neuralgia, Vinay on chloride of methyl spray in...	19
Neuritis, alcoholic peripheral, Dr. Buzzard on	149
——— peripheral, Dr. Buzzard on a typical case of	142
——— peripheral, Dr. Buzzard on, as the cause of diphtheritic paralysis	154
——— peripheral, Dr. Buzzard on the treatment of	159
——— progressive peripheral, Dr. Buzzard on	145
——— progressive peripheral, Dr. Buzzard on its differential diagnosis	157
Neurotic treatment of catarrh, Dr. Lees on the	206
Nitrite of amyl and nitro-glycerine compared, Dr. Leech on	37
Obscure sprains of the elbow in children, Mr. Hutchinson, jun., on	251
Œsophageal cancer, Mr. Chavasse on gastrostomy for	284
Oliver, Dr. T., on lead-poisoning, and its relation to renal disease	162—167
Optic nerve, Mr. Benson on the causes of atrophy of the	361
Osteotomy, astragaloid, for flat-foot, Prof. Stokes on	245
——— with chain-saw for talipes, Mr. Symonds on	248
Ovaries, Dr. Madden on displacements of the	400
Owen, Mr. E., on a cervical collar for caries of cervical spine	225
——— on the treatment of hip-joint abscess	335
Palate, Prof. Hutchinson on syphilitic ulcers of the	350
Paralysis, alcoholic, Dr. Buzzard on...	149
——— alcoholic, Dr. Hadden on six cases of	9
——— diphtheritic, Dr. Buzzard on peripheral neuritis as the cause of	154
——— diphtheritic, Dr. Gowers on the tendon reflexes in	16
——— subacute anterior spinal, in adult, Dr. Duckworth on	132
Paraplegia, hysterical, Dr. Gowers on the deep reflexes in	136
——— of Potts's disease, Dr. Macewen's successful operations for	19
Pasteur, M., his cases of hydrophobia	4
Pavy, Dr. F. W., on cyclic albuminuria	64, 217
Pelvic hæmatocele, Dr. Angus Macdonald on	410
Pemphigus, or essential shrinking of conjunctiva, Mr. Critchett on	116
Penis, Mr. Lowndes' three cases of sloughing ulcer of the	359
——— and testes, Mr. Wheelhouse on their total removal for malignant disease	318
Perineal laceration in primiparæ, Dr. Temple on prevention of	392
Perineum, Dr. Emmet on laceration of the	390

	PAGE.
Peripheral neuritis, Dr. Buzzard on	20
----- Dr. Buzzard on its origin in gout	21
----- Dr. Buzzard on the diversity of symptoms in	21
----- Dr. Buzzard on the diagnosis of	22
----- Dr. Buzzard on the prognosis of	23
----- and alcoholic paralysis, Dr. Buzzard on	22
Peroxide of hydrogen as an antiseptic dressing, Mr. J. Wood on	78
Phagedæna and hospital gangrene, Prof. Hutchinson on syphilis as a cause of	336
Pharynx, Prof. Hutchinson on syphilitic ulcers of the	350
Phthisis, Dr. Money on reflex actions, knee-jerks, &c., in	138
----- Dr. Smith on intra-pulmonary injections in	212
Pierce, Dr. F. W., on Ménière's disease of the ear	379
Pilocarpin, Dr. Josham on hypodermic injection of in acute alcoholism	9
Pityriasis versicolor, M. Vigier's treatment of	95
Pneumonia, Dr. Lockie on the treatment of	208
----- Dr. Smith on intra-pulmonary injections in	210
Popliteal aneurism, Prof. Annandale on its treatment by the old operation	257
Port-wine mark (nævus vinosus), Dr. Duncan's treatment of	95
Powell, Dr. A., on a case of Raynaud's disease following diphtheria	213
Profuse hæmoptysis, Dr. West on the treatment of	42
Prostate, enlarged, Mr. Harrison on tunnelling the	314
Prostatic hypertrophy, Mr. Harrison on its causation and nature	310
Prostatitis with hyaline casts, Sir Andrew Clark on a case of	71
Pruritus, Dr. Duckworth on the use of boro-glyceride in	96
Psoriasis, Dr. Fox on chrysarobin and salicylic acid in	97
Puerperal septicæmia and its treatment, Dr. Barbour on	411
Pulmonary disease, Dr. Duckworth on necessity of urging expectoration in	44
Purpuric eruption due to iodide of potassium, Mr. Silcock on	97
Purulent diseases of middle ear, Dr. Barr's treatment of	110
Pyrexia, Dr. M'Call Anderson on application of iced cloths in	6
Quinine, Dr. Aitkin on the subcutaneous injection of in malaria, &c,	6
Raynaud's disease, Dr. Bernstein on a case of	24
----- following diphtheria, Dr. Powell on a case of	213
Rectum, Dr. Kelsey on the limitations of colotomy in disease of the	296
----- Dr. Macleod on its excision for malignant disease	293
Reflex-actions in typhoid fever, phthisis, etc., Dr. Money on	138
Reflexes, the deep, in hysterical paraplegia, Dr. Gowers on	136
Reid, Dr. W. L., on resuscitation of apparently dead-born children by Schultze's method	414
Re-infusion of blood in primary and other amputations, Dr. Duncan on	221
Renal disease, Dr. Oliver on the relation of lead-poisoning to	167
Resuscitation of apparently dead-born children by Schultze method, Dr. Reid	414
Rheumatism, chronic, Dr. Lorimer on acupuncture in certain forms of	121
Rheumatoid arthritis, Dr. Spender on its early treatment	125
----- Dr. Spender on the clinical features of	122
Richardson, Dr. B. W., on diagnostic deliriums	171
Ringworm, Dr. Alder Smith on the evidence of cure of	98
----- Dr. Saerlis's treatment of	98
----- of the tongue in inherited syphilis, Prof. Hutchinson on	101
Robson, Mr. A. W. M., his two successful cases of cholecystotomy	45
Rupia, Prof. Hutchinson on a severe form of	348
Sarcoma of bones after injury, Mr. Pearce Gould on	87
Scarlet fever, Dr. Ashby on the causes of death in	128
----- Dr. Ashby on hæmorrhage from large vessels of neck in	7
Scarlatinal albuminuria, Dr. Gairdner on	8
Schultze's method of resuscitating apparently dead-born children, Dr. Reid	414
Sciatica, Dr. Debove's treatment by chloride of methyl spray	25
Sclerosis, amyotrophic lateral, Dr. Beever's case of	12
Senn, Dr. N., on air-embolism	197
Septicæmia, puerperal, Dr. Barbour on	411

	PAGE.
Skin diseases, Dr. Brooke on topical applications in	321
———— Prof. Liebreich on the practical uses of lanolin in ...	328
———— chronic, Prof. Hutchinson on the non-occurrence of in inherited syphilis	350
<i>Sloan</i> , Dr. S., on labour delayed by obstruction at pelvic brim ...	117, 118
<i>Smith</i> , Dr. R. S., on intra-pulmonary injections	209
<i>Smith</i> , Mr. G., on removal of superfluous hairs by electrolysis ...	326
<i>Smith</i> , Mr. J. G., on papillomatous cystic disease of broad ligaments ...	405
<i>Spender</i> , Dr. J. K., on rheumatoid arthritis and its treatment ...	122, 125
Sphincter ani, Mr. Wheelhouse on stretching the... ..	290
Spinal curvature, Mr. Clark on a cervical collar for	227
———— Mr. Owen on a cervical collar for	225
———— Mr. Walsham's poroplastic jacket and collar for ...	230
———— Mr. Walsham on relative advantages of poroplastic and plaster jackets in	78
———— paralysis, subacute anterior, Dr. Duckworth on in adult ...	132
Spleen, enlarged, Dr. Bonavia on its treatment with lemon-decoction ...	131
Splenic anæmia in children, Somma on	37
Sprain, chronic, Mr. Moullin on	253
Sprains of the elbow in children, Mr. Hutchinson, jun. on	251
Spurious valvus in the female, Mr. Green's simple method of treating ...	249
Sterility, Dr. Goodell on results of forcible dilatation of cervix for ...	398
<i>Stewart</i> , Dr. J., his report on the treatment of lupus	327
Stigmata maidis, Mr. St. George on its use in vesical catarrh, &c. ...	72
<i>Stokes</i> , Prof. W., on astragaloid osteotomy for flat foot	245
Stomach, ulcer of, Dr. Finny's case of, perforating into the heart ...	61
Stone or tumour in female bladder, Sir H. Thompson's operation for ...	306
Strabismus, Mr. Frost on the early treatment of	108
Strophanthus in cardiac disease, Dr. Fraser on	33, 200
Suppuration around the vermiform appendix, Mr. Godlee's case of ...	62
———— in hip disease, Mr. Wright on	234
Suppurating bubo and inguinal scars as evidence of syphilis, Professor Hutchinson on	103
Supra-pubic lithotomy, Sir Henry Thompson on	71
Sutures, Dr. Zesas on a modification of the continuous suture	89
Synovitis of knee in hereditary syphilis, Mr. Clutton on symmetrical ...	356
<i>Symonds</i> , Mr. H. P., on osteotomy with chain-saw for talipes	248
Syphilis, Prof. Hutchinson on antidotal influence of mercury in	345
———— Prof. Hutchinson on incubation-period of... ..	339
———— Prof. Hutchinson on relationship of tertiary to secondary syphilis ...	341
———— Prof. Hutchinson on suppurating bubo and inguinal scars ...	103
———— as a cause of phagedæna and hospital gangrene, Prof. Hutchinson ...	336
———— as a factor in ear disease, Dr. Woakes on	374
———— inherited, Prof. Hutchinson on the non-occurrence of chronic skin-diseases in	352
———— Prof. Keyes on administration of iodide of potassium in milk ...	104
Syphilitic ear, Dr. Woakes on diagnosis of the	116
———— stricture of the trachea, Dr. Dreschfeld on	334
———— ulceration of the intestine, Mr. Blackmore's case of	105
———— ulcerative tracheitis, Mr. Silcock's case of	106
———— ulcers of palate and pharynx, Prof. Hutchinson on	350
 Tabes dorsalis, Dr. Gowers on the diagnostic value of tendon-reflexes in ...	134
Talipes, Mr. Symonds on osteotomy with chain-saw for	248
<i>Tait</i> , Mr. L., on a case of hysterectomy	403
<i>Temple</i> , Dr. J. A., on prevention of perineal laceration in primiparæ ...	392
Tendon reflexes, Dr. Buzzard on the	26
———— Dr. Gowers on their diagnostic value in tabes dorsalis ...	134
———— Dr. Hughlings Jackson on the	25
Tetanus, acute traumatic, Mr. McArdle on its treatment by curare ...	177
Third stage of labour, Dr. Berry Hart on the	119
<i>Thompson</i> , Sir H., on supra-pubic lithotomy	71, 303
<i>Thompson</i> , Sir H., his modified supra-pubic operation for female bladder ...	306
Thomsen's disease, MM. Pitres and Dallidet's case of	28

	PAGE
Thoracic aneurisin, Dr. Cayley's case treated by steel wire in the sac	38
Thumb, Mr. Lucas on separation of epiphysis of metacarpal bone of	233
Trachea, Dr. Dreschfeld on syphilitic stricture of the	334
Tracheotomy, Dr. Habershon on the after treatment of	215
——— Mr. Buller on feeding by a nasal tube after	44
Treves, Mr. F., on faecal accumulation and its treatment	49, 50, 287
Trusses, Prof. Chiene on their application in hernia	279
Tumour of bladder, Sir H. Thompson's modified supra-pubic operation	
for in females	306
the neck, Prof. J. Hutchinson on a curious	99
Tumours, osseous, Mr. Field on their removal from the ear	376
Tunnelling the enlarged prostate, Mr. Reginald Harrison on	314
Typhoid fever, Dr. Money on reflex-actions in	138
Ulcer of the penis, sloughing, Mr. Lowndes' three cases of	359
stomach perforating into the heart, Dr. Finny's case of	63
Ungual extosis, Mr. Southam on method of removal of	90
Union by first intention, Mr. Berry on the promotion of	255
Urethan, a new hypnotic, Dr. von Jaksch on	29
as a sedative and hypnotic, Dr. Myrtle on	29
in cardiac disease, Dr. Saundby on	30
Urethral fever, Dr. Kinloch on death from catheterism in	300
Urine, extravasation of, Mr. Jones on Cock's operation for	68
Uterine antelexion, Dr. Goodell on its clinical significance	396
catarrh, chronic, Dr. Kugelmann on iodoform in	116
Valgus in the female, spurious, Mr. Green's simple method of treating	249
Varicocele, Mr. Robson on its treatment by excision	74
Venesection in mitral stenosis, Dr. Broadbent on	188
Vermiform appendix, Mr. Godlee's case of suppuration around the	62
Vesical catarrh, Mr. St. George on the use of stigmata maidis in	72
Vitreous body, artificial, Dr. Mules on surgical and æsthetic advantages of the	366
Walsham, Mr. W. J., his jacket and collar for cervical angular curvature	230
West, Dr. S., on acute parenchymatous myocarditis	182
Williams, Mr. R., on cysticercus of anterior chamber of eye	372
Wheelhouse, Mr. C. G., on distended gall-bladder and its treatment	281
on stretching the sphincter ani	290
on total removal of penis and testes for malignant disease	318
Woakes, Dr. E., on syphilis as a factor in ear disease	374
Wounds, Mr. Berry on promotion of union by first intention	255
Wright, Mr. G. A., on suppuration in hip disease	234
Yale, Dr. L. M., on indications for excision of hip, and its results...	237



